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NATURAL HISTORY,

GENERAL AND PARTICULAR,

BY THE

COUNT DE BUFFON.

VOL. IX.

HISTORY OF QUADRUPEDS.

Sevagee Rajah 1821

NATURAL HISTORY,

GENERAL AND PARTICULAR,

2

BY THE

COUNT DE BUFFON,

ILLUSTRATED WITH ABOVE SIX HUNDRED COPPER PLATES.

2781

THE

HISTORY OF MAN AND QUADRUPEDS

TRANSLATED, WITH NOTES AND OBSERVATIONS,

BY WILLIAM SMELLIE,

MEMBER OF THE ANTIQUARIAN AND ROYAL SOCIETIES OF EDINBURGH.

A NEW EDITION,

CAREFULLY CORRECTED AND CONSIDERABLY ENLARGED, BY MANY ADDITIONAL ARTICLES, NOTES, AND PLATES,

AND

SOME ACCOUNT OF THE LIFE OF M. DE BUFFON.

BY WILLIAM WOOD, F. L. S.

IN TWENTY VOLUMES.

VOL. IX.

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3
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CONTENTS.

	Page.
Natural History of the Two-toed and Three-toed Sloths	1
the Kouri, or little Two-toed Sloth	19
the Surikate, or Four-toed Weesel	21
the Tarsier, or Woolly Jerboa	26
the Hamster, or German Marmot	29
the Jerboas	49
the Jerboa	58
the Daman Israel	73
the Ichneumon	81
the Fossane	94
the Vansire	97
the Tayra, Galera, or Guinea Weesel	100
the Perouasca	103
the Touan	105
the Makis, or Maucaucos	107
the little Gray Makis	117
another Kind of Makis	119
the Madagascar Rat, or Dwarf Maucauco	121
the Loris, or Tailless Maucauco	123
the Bengal Loris	126
the Aye Aye	137
the Serval, or Mountain Cat	141
the Ocelot, or Mexican Cat	141
the Margay, or Cayenne Cat	151
the Tiger Cat of Carolina	157
the Wild Cat of New Spain	158
the Bizaam	159
the Jackal and Adive	162

PAGE.

Natural History of the Isatis, or Arctic Dog . 178
an Anonymous Animal . . 186
the Glutton 190
the Mouffettes, or Stinking Polecats 210
the Pekan and the Vison . 222
the Mouffette of Chili . . 225
the Sable 227
the Leming, or Lapland Marmot 236
the Seals, the Walrus, and the Manati 242
the Seals 246
Seals without Ears, or Seals properly so called . . . 254
the Great Seal with a wrinkled Nose 255
the White-bellied Seal . . 267
the Hooded Seal 282
the Crescent Seal 284
the Niet-Soak Seal . . . 288
the Laktak Seal of Kamtschatka 289
the Gassigiak Seal . . . 290
the Common Seal 291
the Sea-Bear 304
the Sea-Lion 324
the Walrus, Morse, or Sea-Cow 344
the Indian Walrus, or Dugon 363
the Manati 367
the great Kamtschatkan Manati 373
the great West Indian Manati 382
the great Indian Manati . 393
the little American Manati 396
the little Senegal Manati . 402

DIRECTIONS TO THE BINDER.

		To face Page
CCXCIV.	Two-toed Sloth	1
CCXCV.	Young Three-toed Sloth	4
CCXCVI.	Adult	ibid.
CCXCVII.	Kouri	19
CCXCVIII.	Surikate	21
CCXCIX.	Tarsier	26
CCC.	Hamster	29
CCCI.	Jerboa	58
CCCII.	Great Jerboa	60
CCCIII.	Kanguroo	70
CCCIV.	Daman Israel	73
CCCV.	Mangouste	81
CCCVI.	Great Mangouste	ibid.
CCCVII.	Nems	90
CCCVIII.	Fossane	94
CCCIX.	Vansire	97
CCCX.	Touan	105
CCCXI.	Maucauco	107
CCCXII.	Mongous	111
CCCXIII.	Great Mongous	113
CCCXIV.	Vari	114
CCCXV.	Little Gray Maucauco	117
CCCXVI.	Flocky Makis	119
CCCXVII.	Madagascar Rat	121
CCCXVIII.	Loris	123
CCCXIX.	Bengal Loris	126
CCCXX.	Aye Aye	137
CCCXXI.	Serval	141
CCCXXII.	Ocelot	144
CCCXXIII.	Ditto Female	ibid.
CCCXXIV.	Margay	151
CCCXXV.	Wild Cat of New Spain	158
CCCXXVI.	Bizaam	160
CCCXXVII.	Jackal Adive	171
CCCXXVIII.	Little Jackal	172
CCCXXIX.	Isatis	178
CCCXXX.	Anonymous Animal	186
CCCXXXI.	Glutton	190

			To face Page
Plate	CCCXXXII.	Carcajou	200
	CCCXXXIII.	Kincajou	204
	CCCXXXIV.	Poto	208
	CCCXXXV.	Coasse	218
	CCCXXXVI.	Chinch	*ibid.*
	CCCXXXVII.	Conepate	*ibid.*
	CCCXXXVIII.	Zorille	*ibid.*
	CCCXXXIX.	Pekan	223
	CCCXL.	Vison	*ibid.*
	CCCXLI.	Mouffette of Chili	225
	CCCXLII.	White-bellied Seal	267
	CCCXLIII.	Dr. Parsons's Seal	280
	CCCXLIV.	Seal	291
	CCCXLV.	Small Seal	294
	CCCXLVI.	Sea-Bear	304
	CCCXLVII.	Sea-Lion	324
	CCCXLVIII.	Walrus	344
	CCCXLIX.	Young Manati	367

ERRATA.

Page 271, line 1, *for* "sweet" *read* fresh.
312, 5 from bottom, *for* "six" *read* ten.
321, 6 from bottom, *for* "sweet" *read* fresh.

Plate 294

Two-toed SLOTH.

NATURAL HISTORY.

THE TWO-TOED* AND THREE-TOED SLOTHS†.

THESE two animals have been denominated *sloths*, on account of the slowness of their movements, and the difficulty with which they

* BRADYPUS.

CHARACTER GENERICUS.

Dentes primores nulli utrinque.
Laniarii obtusi, solitarii, molaribus longiores, occursantes.
Molares utrinque quinque, obtusi.
Corpus pilis tectum.

CHARACTER SPECIFICUS.

BRADYPUS DIDACTYLUS. B. manibus didactylis, cauda nulla.—*Linn. Syst. Nat. Gmel.* i. p. 51.—*Schreb.* ii. pl. 65.—*Erxleb. Mamm.* p. 89.

Bradypus pedibus anticis didactylis, posticis tridactylis.—*Briss. Quadr.* p. 22.

TARDIGRADUS ZEYLANICUS.—*Seba, Mus.* i. p. 54, pl. 33, fig. 4, et pl. 34, fig. 1, bona.

walk. Though they resemble each other in many respects, they differ, both externally and internally, by characters so marked, that it is impossible not to recognise them as very dis-

L'UNAU.—*Buff. Hist. Nat. par Sonn.* xxxii. p. 125, pl. 6.

TWO-TOED SLOTH.—*Penn. Hist. Quadr.* ii. p. 242.—*Mus. Lever.* i. p. 79, No. ii. pl. 7.—*Shaw's Gen. Zool.* i. p. 156, pl. 46.

HABITAT

in Zeylona, injuste id negante Buffonio; in Guinea, vix enim dubito, idem animal esse Potto Guineensium. Neque etiam Americæ australis exul plane videtur *.

W.

The sloths have no cutting teeth in either jaw; but they have canine teeth and grinders. The fore-legs are much longer

* "Inhabits South America, and the isle of Ceylon. The last is strenuously denied by M. de Buffon, who has fixed the residence of this genus to America only: but besides the authority of Seba, who says his specimen was brought from Ceylon, a gentleman, long resident in India, and much distinguished in the literary world, has informed me he has seen this animal brought from the Paliacat mountains that lie in sight of Madras; which satisfies me that it is common to both continents. Farther inquiry is desired into the identity of this species.

"There is reason to think that it is met with also in Guinea, or at least some species of this genus; for Barbot and Bosman describe an animal by the name of *potto*, to which they give the attributes of the former, and describe as being gray; when young, red, and covered with a sort of hair as thick set as flocks of wool. Both these writers were sensible men, and, though not naturalists, were too observant of the animals of Guinea to mistake one whose characters are so strongly marked as those of the sloth."—*Penn. Hist. Quadr.* ii. p. 242. *W.*

tinct species. The unau, or two-toed sloth, has no tail, and only two claws on the fore-feet: the aï, or three-toed sloth, has a tail, and three

than the hind, and the claws are long.—The two-toed sloth has a round head, short projecting nose, ears like the human, lying flat on the head, two long claws on the fore-feet, and three on the hind. The hair on the body is long and rough; in some parts curled and woolly, in some, of a pale red above, cinereous below; and in others, of a yellowish-white below, and a cinereous brown above. The length of that in the British Museum is eleven inches; I believe it is a young one: it has no tail.—*Pennant's Synops. of Quad.* p. 321.

† CHARACTER SPECIFICUS.

BRADYPUS TRIDACTYLIS. B. pedibus tridactylis, cauda brevi.—*Linn. Syst. Nat. Gmel.* i. p. 51.—*Erxleb. Mamm.* p. 84.

Bradypus crinitus, palmis tridactylis, unguebus arcuatis.—*Brown, Jam.* p. 489.

Tardigradus pedibus anticis et posticis tridactylis.—*Briss. Quadr.* p. 21.

ARCTOPITHECUS.—*Gesn. Quadr.* p. 869.

IGNAVUS.—*Clus. Exot.* p. 372, fig. p. 373.—*Jonst. Quadr.* p. 145, pl. 62.

AI seu Tardigradus gracilis Americanus.—*Seba, Mus.* i. p. 53, pl. 33, fig. 2. bona.

L'AI.—*Buff. Hist. Nat. par Sonn.* xxxii. p. 125, pl. 8.

SLOTH.—*Ray's Synops. Quadr.* p. 245.—*Edw. Av.* pl. 220.

THREE-TOED SLOTH.—*Penn. Hist. Quadr.* ii. p. 240, pl. 91.—*Shaw's Gen. Zool.* i. p. 149, pl. 45.

HABITAT

in Americæ meridionalis arboribus. *W.*

The three-toed sloth has a blunt black nose, a little lengthened, very small external ears, and eyes small, black,

claws on all the feet. The muzzle of the former is longer, the front more elevated, and the ears more apparent, than those of the latter. Their hair is also very different. The structure and situation of some parts of their viscera are likewise different. But the most remarkable distinction is derived from this singular circumstance, that the unau has forty-six ribs, and the aï only twenty-eight, which shows them to be species very remote from each other. This number of ribs, in the body of an animal so short, is an excess or error of Nature; for no animal, however large, has such a number of ribs: the elephant has only forty, the horse thirty-six, the badger thirty, the dog twenty-six, man twenty-four, &c. This difference in the structure of the sloths indicates a greater distance between these two species than between the dog and cat, which have both the same number of ribs; for external differences are nothing when compared to those which are internal: the

and heavy. From the corner of each eye, there is a dusky line. The colour of the face and throat is a dirty white. The hair on the limbs and body is long, very uneven, and of a cinereous brown colour. The tail is short, being a mere stump. The legs are thick, long, and awkwardly placed. The face is naked. There are three toes, and three very long claws on each foot. The length of that in the British Museum is twelve inches; but it grows to the size of a middle sized fox. — *Pennant's Synops. of Quad.* p. 319.

Aï, the Brasilian name of this animal, taken from its plaintive cry, *a, i*, which it often repeats; *hay*, according to Lery; and *hau* or *hauthi*, according to Thevot. The *Perillo ligero* of Oviedo, and the *haut* of Nieremberg.

Plate 295

YOUNG three-toed SLOTHS.

4

Plate 296

ADULT three-toed SLOTH.

former may be regarded as causes, and the latter as effects only. The interior frame of animated beings is the foundation of Nature's plan; it is the constituent form, and the origin of all figure: but the external parts are only the surface or drapery. How often have we not found, in the course of our comparative examination of animals, that a very different external appearance covered internal parts perfectly similar; and that, on the contrary, the slightest internal distinction produced great external differences, and changed the natural dispositions, powers, and qualities of the animal? How many animals are armed, covered, and adorned with excrescent parts, whose external structure corresponds exactly with others which are totally deprived of such appendages? But this is not a proper place for such nice disquisitions. We shall only remark, that, in proportion as Nature is vivacious, active, and exalted in the monkey kind, she is slow, restrained, and fettered in the sloths. From a defect in their conformation, the misery of these animals is not more conspicuous than their slowness. They have no cutting teeth; the eyes are obscured with hair; the chops are heavy and thick; the hair is flat, and resembles withered herbs; the thighs are ill jointed to the haunches; the legs are too short, ill turned, and terminated still worse: their feet have no soles, and no toes which move separately, but only two or three claws, disproportionally long, and bended downward, which

move together, and are more hurtful to their walking, than advantageous in assisting them to climb. Slowness, habitual pain, and stupidity, are the results of this strange and bungled conformation. The sloths have no weapons either offensive or defensive. They are furnished with no means of safety; for they can neither fly nor dig the earth. Confined to a small space, or to the tree under which they are brought forth, they are prisoners in the midst of space, and cannot move the length of one fathom in an hour *. They drag themselves up a tree with

* Perillo ligero, sive canicula agilis, animal est omnium quæ viderim ignavissimum; nam adeo lente movetur, ut ad conficiendum iter longum dumtaxat quinquaginta passus, integro die illi opus sit. . . . . In ædes translatum naturali sua tartidate movetur, nec a clamatione ulla aut impulsione gradum accelerat. — *Oviedo in summario Ind. Occid.* cap. 23, *traduit de l'Espagnol en Latin par Clusius. Exotic.* lib. v. cap. 16. Tanta est ejus tarditas ut unius diei spatio vix quinquaginta passus pertransire possit. — *Hernand. Hist. Mex.* The Portuguese have given the name of *sloth* to a very extraordinary animal, which is of the size of an opossum. The hind part of its head is covered with a coarse mane, and its belly is so gross that it sweeps the ground. It never rises on its legs, and trails so slowly along, that in fifteen days it can hardly accomplish the length of a stone-cast. — *Hist. des Indes, par Maffé,* p. 71. — *Descript. des Indes Occident. par Herrera,* p. 252. "Tam lentus est illius gressus et membrorum motus, ut quindecim ipsis diebus ad lapidis ictum continuo tractu vix prodeat." — *Pison, Hist. Bras.* p. 322. *Nota,* This assertion of Piso, which he has borrowed from Maffé and Herrera, is much exaggerated.—This is the most sluggish of all animals: it is needless to employ greyhounds to overtake him; a tortoise is sufficient.—*Desmarchais,* tom. iii. p. 301. *Nota,* This

much labour and pain. Their cry and interrupted accents they dare only utter during the night. All these circumstances announce the misery of the sloths, and recal to our minds those defective monsters, those imperfect sketches of Nature, which, being hardly endowed with the faculty of existence, could not subsist for any length of time, and have accordingly been struck out of the list of beings. If the regions inhabited by the sloths were not desert, but had been long occupied by men and the larger animals, these species would never have descended to our times: they would have been annihilated, as must happen in some future period. We formerly remarked, that every thing that possibly could be, really did exist; of which the sloths are a striking example. They constitute the last term of existence in the order of animals endowed with flesh and blood. One other defect

is another exaggeration. . . . They require eight or nine minutes to advance one foot to the distance of three inches, and they move one after another with equal slowness. Blows do not accelerate their pace. I have whipt some of them, in order to discover whether pain would give them any animation: but they seemed to be insensible, and I was unable to make them move faster.—*Dampier's Voyage.* The sloths do not move fifty paces in a day. When the hunter wishes to take one of them, he may proceed with his sport, and, on his return, he will find the animal very little removed from its former place.—*Voyage à Cayenne, par Binet,* p. 341. This animal receives the epithet of *courser,* because he requires a whole day to accomplish a quarter of a league.—*Hist. de l'Orenoque, par Gumilla,* tom. ii. p. 13. *Note.* This author seems to be the only one who approaches the truth, with regard to the slowness of these animals.

added to the number would have totally prevented their existence. To regard those bungled sketches as beings equally perfect with others, to call in the aid of final causes to account for such disproportioned productions, and to make Nature as brilliant in these as in her most beautiful animals, is to view her through a narrow tube, and to substitute our own fancies for her intentions.

Why should not some animals be created for misery, since, in the human species, the greatest number of individuals are devoted to pain from the moment of their existence? Evil, it is true, proceeds more from ourselves than from Nature. For a single person who is unhappy because he was born feeble or deformed, there are millions rendered miserable by the oppression of their superiors. The animals, in general, are more happy, because the species have nothing to fear from individuals: to them there is but one source of evil; to man there are two. Moral evil, of which he himself is the fountain, has accumulated into an immense ocean, which covers and afflicts the whole surface of the earth. Physical evil, on the contrary, is restrained within very narrow bounds: it seldom appears alone; for it is always accompanied with an equal, if not a superior good. Can happiness be denied to animals, when they enjoy freedom, have the faculty of procuring subsistence with ease, and possess more health, and organs capable of affording greater pleasure than those of the human species? Now, the generality of animals are most

liberally endowed with all these sources of enjoyment. The degraded species of sloths are perhaps the only creatures to whom Nature has been unkind, and who exhibit to us the picture of innate misery.

Let us take a closer view of the condition of these creatures. By the want of teeth, they can neither seize prey nor feed upon flesh or herbage. Reduced to the necessity of living upon leaves and wild fruits, they consume much time in trailing their bodies to the foot of a tree, and still more in climbing to the branches*; and,

* It is alleged by the natives, that this animal lives solely on the leaves of a certain tree, called in their language *amahut*. This tree is higher than any other in that country. Its leaves are very small and delicate; and, because the sloth is commonly found in these trees, they have given it the name of *haut*. — *Singul. de la France Antarc. par Thevet*, p. 100. The sloth lives solely on the leaves of trees, and the highest branches serve him for a retreat; but it costs him two days' journey to arrive at them. . . . . . Neither caresses, threatenings, nor even blows, can make him move quicker. — *Hist. des Indes, par Maffé*, p. 71. — *Herrera*, p. 252. The sloth is not so large, nor so rough as the *tamanoir*, or great anteater. . . . . He feeds upon leaves. . . . . . These animals do much mischief to trees; after eating all the leaves of one tree, they employ five or six days in descending it and climbing another, however nearly situated; and, though plump and fat when they begin their journey, they are reduced to skin and bone before it is finished. They never abandon a tree till they have made it as bare as it can be in the middle of winter. — *Dampier's Voyage*. They climb trees, but so slowly, that they are easily taken. When seized, they make no resistance, and never attempt to fly. If a long pole is presented to the sloth, he begins to mount it; but the slowness of his motion is tiresome; when he arrives at the top he remains

during this slow and melancholy exercise, which sometimes lasts several days, they are obliged to suffer the most pressing hunger. When arrived upon a tree, they never descend. They cling to the branches, and devour successively the leaves of every twig. They pass several weeks in this situation, without receiving any drink. When they have rendered the tree entirely naked, they still remain; because they cannot descend. In fine, when the pressure of hunger becomes superior to the dread of danger or death, being unable to descend, they allow themselves to tumble down like an inanimated mass; for their stiff and inactive limbs have not time to extend themselves in order to break the fall.

When on the ground, they are at the mercy of all their enemies. As their flesh is not absolutely bad, both men and rapacious animals go in quest of these animals. It appears that they do not multiply fast, or, at least, if they produce frequently, it must be in small numbers at a time; for they have only two paps. Every circumstance, therefore, concurs to destroy them; and it is extremely difficult for the species to sup-

there, without taking the trouble of descending. — *Voyage de Cayenne, par Binet,* p. 341. The sloths have four legs, which they employ only in climbing: when perched upon a tree, they never quit it till they have eat the whole leaves. They then descend, and mount another, the leaves of which they devour in the same manner. We placed this animal on the lowest sail of the fore-mast. It spent two hours in climbing to the scuttle, which a monkey would have accomplished in half a minute. One would imagine that it moves by a spring, like the pendulum of a clock. — *Travels by Woods Rogers.*

port itself. But, though slow, awkward, and almost incapable of motion, they are obstinate, strong, and tenacious of life. They can live very long without victuals of any kind *. They are covered with thick, dry hair; and, being incapable of exercise, they lose little by perspiration; and, though their food be meager, they fatten by repose. Though they have no horns nor hoofs, nor cutting teeth in the under jaw, yet they belong to the ruminating tribes, and have several stomachs. Hence the quality of their food may be compensated by the quantity they take at a time. What is still more singular, instead of very long intestines, like other ruminating animals, their guts are very short and small, like those of the carnivorous kind. This contrast exhibits the ambiguity of Nature. The sloths are unquestionably ruminating animals: they have four stomachs; and yet they want every other character, both internal and external, which generally belongs to animals of this class. There is still another singularity in the conformation of the sloths: instead of three distinct apertures for the discharge of urine and excrements, and for the purposes of generation, these animals have but one, which terminates in a common canal, as in birds.

Moreover, if the misery resulting from a defect of sentiment be not the worst of all, the pain endured by the sloths, though very apparent,

* I had a present of a living *haut,* which I kept twenty-six days, during which he neither ate nor drank. — *Singular. de la France Ant. par Thevet,* p. 99.

seems not to be real; for their sensations appear to be blunt. Their calamitous air, their dull aspect, and their reception of blows without emotion, announce their extreme insensibility. This bluntness of sensation is farther demonstrated by their not dying instantly when their hearts and bowels are entirely cut out. Piso, who made this cruel experiment *, tells us, that the heart, after being separated from the body, beat in a lively manner for half an hour; and that the animal continued to contract its legs slowly, as commonly happens during sleep. From these facts, this quadruped seems to approach not only the turtle, but the other reptiles which have no distinct centre of sensation. All these beings may be said to be miserable, but not unhappy: Nature, even in her most neglected productions, always appears more in the character of a parent than of a stepmother.

These two animals are peculiar to the southern

* Secui fœmellam vivam . . . . habentem in se fœtum omnibus modis perfectum cum pilis, unguibus, et dentibus, amnioni more cæterorum animalium inclusum. Cor motum suum validissime retinebat postquam exemptum erat e corpore per semihoram; placenta uterina constabat multis particulis carneis instar substantiæ renum, rubicundis magnitudinis variæ, instar fabarum; in illas autem particulas carneas (tenuibus membranulis connexas) per multos ramulos vasa umbilicalia instar funis contorta, inserta erant. Cor fœmellæ duas habebat insignes auriculas cavas. Exempto corde cæterisque visceribus, multo post se movebat, et pedes lente contrahebat sicut dormituriens solet. Mammillas duas cum totidem papillis in pectore fœmella et fœtus gerebant. — *Pison, Hist. Bras.* p. 322.

regions of the New Continent, and are no where to be found in the Old. We formerly remarked, that the editor of Seba's cabinet was deceived when he called the two-toed sloth, or unau, the *sloth of Ceylon*. This error, which has been adopted by Klein, Linnæus, and Brisson, is now more evident than it was formerly. The marquis de Montmirail has a live unau, which was transmitted to him from Surinam: those we have in the royal cabinet were brought from the same place and from Guiana; and I am persuaded that both species exist through the whole deserts of America, from Brasil * to Mexico. But, as they have never frequented the northern regions, they could not pass from the one continent to the other. If these animals have sometimes been seen in the East Indies, or on the coast of Africa, it is certain that they must have been transported thither. They cannot endure cold; and they likewise dread rain. The alternation of moisture and dryness changes their fur, which has more the appearance of ill dressed hemp than of wool or hair.

I shall finish this article with some observations communicated to me by the marquis de Montmirail, concerning an unau, or two-toed sloth, which he fed three years in his menagery: "The hair of the unau is much softer than that of the aï. . . . . . All that has been said by

* The aï, or three-toed sloth, described and engraven by Edwards, came from the Bay of Honduras; and Ulloa says, that it is found in the environs of Porto-bello.

travellers concerning the excessive slowness of the sloths should, probably, be applied only to the aï, or three-toed species. The unau, though very heavy, and of an extremely awkward gait, mounted and descended the highest tree several times in a day. It was in the evening and during the night that he was most active, which made me suspect that he saw very ill in the day, and that his eyes were of no use to him but in the dark. I purchased this animal at Amsterdam. It was fed with sea-biscuit; and I was told, that, during the verdure of the trees, it would require nothing but leaves. We gave him leaves, which he ate freely, when they were tender; but, as soon as they began to dry, or were pierced by caterpillars, he refused them. During the three years that I kept him alive in my menagery, his ordinary food was bread, apples, and roots; and his drink was milk. He always laid hold, though with difficulty, of what he wanted to eat, with his fore paws; and the difficulty increased in proportion to the largeness of the morsel. He seldom cried; his cry is short, and he never repeats it twice, without a considerable interval. This cry, though plaintive, has no resemblance to that of the aï, if it be true that *aï* is the sound of that animal's voice. The most natural situation of the unau, and which he prefers to all others, is hanging on a branch, with his body turned downward. He sometimes sleeps in this position, his fore paws being fixed to the same point, and his body forming an arch. The

strength of his muscles is incredible; but it becomes useless to him when he walks; for his motion is constrained and wavering. This structure alone seems to be the cause of the animal's slowness, which, besides, has no violent appetites, and does not recognise those who take care of him."

M. de la Borde remarks, that there are two species of these animals in Cayenne, the one called the *bashful-sloth*, and the other the *sheep-sloth*. The latter is twice as long as the former, and of the same thickness. He has long, bushy, whitish hair, and weighs about twenty-five pounds. He throws himself down upon men from the tops of trees, but in a manner so sluggish, that it is easy to avoid him. He feeds during the day as well as the night.

" The bashful sloth," M. de la Borde remarks, " has black spots on his body, weighs twelve pounds, keeps always on trees, and eats the leaves of the Surinam fig-tree, which are said to be poisonous. The bowels of this sloth poison dogs, and yet the flesh is good to eat; but its use is confined to the common people.

" Both species produce only a single young, which they always carry on their back. It is probable, though I am not certain, that the females bring forth on trees. They feed on the leaves of the Brasilian plumb-tree *, and of the Surinam fig. The two species are equally com-

* Spondias lutea of Linnæus.

mon; but they are not frequent in the environs of Cayenne. They sometimes suspend themselves by their claws on branches of trees which hang over the rivers; and, when in this situation, it is easy to cut the branch and make them fall into the water; for they never quit their hold.

"When ascending a tree, this animal carelessly stretches out one of its fore-pats, and fixes its long claw as high as it can reach. It then heavily raises its body, gradually fixes the other pat, and, in this manner, continues to climb. All these movements are incredibly slow and languid. When kept in houses, they always climb upon some post or door, and never choose to rest on the ground. If a stick be held out to them when on the ground, they lay hold of it, and mount to its top, where they firmly adhere with their fore paws, and embrace the stick with their whole body. They have a weak plaintive cry, which is heard at no great distance."

From this passage, it is obvious, that the sheep-sloth is the same with what we have called *unau*, or the three-toed sloth; and that the bashful-sloth is the *aï*, or two-toed species.

M. Vosmaër, an able naturalist, and superintendant of the prince of Orange's cabinet, has criticised two assertions in my history of these animals. He remarks, "that we ought to reject the relation of M. de Buffon, when he tells us, that the sloths are unable to descend from

a tree, but allow themselves to fall down like blocks *."

I advanced this fact on the authority of eye-witnesses, who assured me, that they had sometimes seen the animal fall down at their feet. The fact is farther supported by the testimony of M. de la Borde. What I have said on this subject, therefore, ought by no means to be rejected.

The second assertion is not equally well founded. I willingly acknowledge my mistake, when I said that the sloths had no teeth, and I thank M. Vosmaër for correcting this error †.

* Descript. d'un Paresseux Pentedactile de Bengale, p. 5.

† The following are some curious observations by Dr. Shaw on the distribution of the arteries in the sloth:

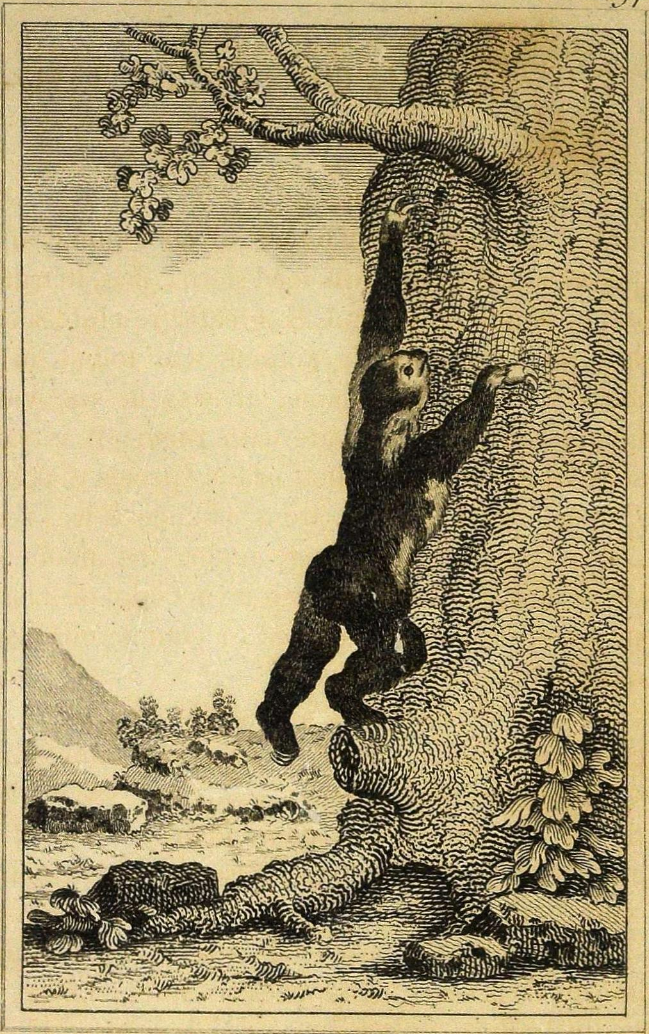
"In Mr. Carlisle's description of the remarkable disposition of the trunks of the subclavian and iliac arteries in the lemur tardigradus, he very properly observed, that 'it would be of some importance in physiology to ascertain whether the other slow-moving quadrupeds have any peculiar arrangement of the arteries of their limbs,' the single fact above recorded being hardly sufficient for the foundation of any theoretical explanation of the slow movement of the muscles. The British Museum afforded an opportunity of investigating this particular in other slow-moving quadrupeds, and Mr. Carlisle, at my request, examined the arteries of the bradypus tridactylus, of all quadrupeds yet known the slowest in its movements; when the same remarkable distribution of vessels presented itself, both in the upper and lower limbs; and the small divisions of the artery, forming the surrounding cylinder, were still more numerous than in the slow lemur; *viz.* not less than sixty or sixty-five, and in the lower limbs, at least as many: these small cylinders were also connected by several lateral or anastomosing branches. We then opened a specimen of the bradypus didactylus, an animal far less slow in

its motions than the tridactylus. In this species, a distribution indistinctly approaching to that above described was discovered, but with much fewer divisons, and more approaching to the usual distribution in other quadrupeds. Lastly, a lemur loris, or slender-limbed lemur, was examined; when it appeared, that the trunk of the artery, both in the upper and lower limbs, was surrounded by only four or five smaller cylinders, instead of the numerous ones so remarkable in the slow lemur, &c." — *Shaw's Gen. Zool.* i. p. 157.

W.

19

Plate 297



KOURI.

THE KOURI, OR LITTLE TWO-TOED SLOTH.

WE here give the figure of an animal of a species allied to the two-toed sloth: it is, in truth, half as small again, but it greatly resembles the sloth in shape. This animal was found in a house in French Guiana; it was in the yard among the fowls, and ate with them: it is said to be the only individual of the species that has been seen at Cayenne, from whence it was sent us for the king's cabinet, under the name of *kouri*; but we have received no account of its natural habits, and are obliged to confine ourselves to a simple description.

This little sloth resembles the great one in an essential character; it has, like him, only two toes on the fore-feet, instead of which the *aï* has three, and consequently it is of a different species from the *aï*: it is only twelve inches long, from the end of the nose to the origin of the tail, whilst the two-toed sloth, which we have described, is seventeen inches six lines; however, this little sloth appears to be full grown. Like the great one, it has two toes before and five (three) behind; it not only differs in size, but also in its hair, which is of a dark brown shaded

with grayish, and tawny; and this hair is much shorter and of a duller colour than in the great two-toed sloth: under the belly it is of a clear cinereous brown, and this colour brightens still more under the neck to the shoulders, where it forms a pale tawny band: the longest nails of this little sloth are not more than nine lines, while those of the great one are seventeen and a half.

We have had the great two-toed sloth alive, but as we have only described the little one from a stuffed skin, we cannot speak on all the differences which might be found between these two animals; we nevertheless presume that they form but one and the same species, in which exist two kinds, the one large, and the other small.

21

Plate 298

SURICATE.

THE SURIKATE, OR FOUR-TOED WEESEL *.

THIS animal was purchased in Holland, under the name of *surikate*. It is a native of Su-

* CHARACTER SPECIFICUS.

VIVERRA TETRADACTYLA. V. pedibus tetradactylis, naso producto mobili.—*Linn. Syst. Nat. Gmel.* i. p. 85.—*Schreb.* iii. pl. 117.

VIVERRA SURIKATTA. V. grisea, naso producto mobili, pedibus tetradactylis, cauda ferruginea, apice nigro.—*Shaw's Gen. Zool.* i. p. 384.

Viverra (Surikatta) pedibus tetradactylis.—*Erxleb. Mamm.* p. 488.

VIVERRA TETRADACTYLA.—*Miller. Cimel. Phys.* t. 20.

LE SURICATE.—*Buff. Hist. Nat. par Sonn.* xxxi. p. 294, pl. 31.

FOUR-TOED WEESEL.—*Penn. Hist. Quadr.* p. 57.

SURIKATE.—*Shaw's Gen. Zool.* i. p. 384, pl. 93.

HABITAT

in Africa Australi. *W.*

* The four-toed weesel, with the upper jaw much longer than the lower, and very moveable and pliant. The ears are rounded; the hair pretty long, hard, and upright, varied with black and white; the points black. It has only four toes on each foot, which is an exception to the weesel kind. The tail is taper. The length of the animal, from nose to tail, is about one foot, and that of the tail six inches —*Pennant's Synops. Quadr.* p. 228.

rinam, and other provinces of South America *. We fed it for some time; and afterwards M. de Sève, who has drawn, with equal skill and attention, the animals published in this work, having kept it alive during several months, communicated to me the remarks he had made with regard to its natural habits and dispositions. It is a handsome, active, and dexterous animal, sometimes walking on end, and frequently sitting upright, with the fore-feet hanging down, the head erect, and moving on the neck as upon a pivot. It always assumed this attitude when it came near the fire to warm itself. It is not so large as a rabbit, and pretty much resembles the ichneumon, both in size and hair, only it is rougher, and the tail is not so long. But, by the prominency of the upper part of the muzzle, it makes a nearer approach to the coati, or Brasilian weesel, than to any other animal. The surikate has also a character which is peculiar to it and the hyæna; for they are the only animals which have four toes on all their feet.

At first, we fed this surikate with milk, because it was very young: but its taste for flesh soon appeared. It eat raw meat, and par-

* Mr. Pennant remarks, that M. de Buffon is the only person who has described this animal, but that he seems to have been deceived with regard to the place of its nativity. Instead of South America, Mr. Pennant says, that it inhabits the Cape of Good Hope and the island of Java, and refers, for his authorities, to *Pallas, Miscell. Zool.* p. 59, 60; and *Rumph. Herb. Amboin.* app. p. 71. The latter, when speaking of the ichneumon, or muncos, says, "ac distinguendus est a suracatje seu *Javanorum* zupe, quod est mustela."

ticularly the flesh of chickens, with great avidity. It likewise endeavoured to seize young animals. A young rabbit, which lived in the same house, would have fallen a prey, if it had not been prevented from making the attack. It was fond of fish, and still fonder of eggs. I have seen it carry off, with its two paws, eggs which had been put into the water to be boiled. It refused fruits, and even bread, unless it was mashed. Like the squirrel, it employed its fore paws to convey its victuals to its mouth. In drinking, it lapped like a dog, and never drank water but when it was warm. Its ordinary drink was its own urine, though it had a very strong odour. It frolicked with the cats, and always innocently. It did no harm to the children, and never bit any person but the master of the house, to whom it had taken an aversion. It never gnawed with its teeth, but often injured the plaster and furniture by scratching with its claws. It was so well tamed, that it knew its own name. It went about through the whole house, and returned whenever it was called. It uttered two kinds of sounds. When it was tired by being alone, or heard any unusual noise, it barked like a young dog; and, when it was caressed, or felt any pleasant emotion, it made a noise as brisk and striking as a small rattle rapidly turned round. This animal was a female, and appeared to be frequently in season, notwithstanding the coldness of the climate, which, though every thing was done to

cherish and keep her warm, she could support during one winter only.

We have remarked above, that the surikate did no injury to children; and that it never bit any person but adults, and, among others, the master of the family, against whom it had taken an aversion. I since heard that it never attacked either the mother or the children of his family, but that it bit a number of other persons of both sexes. M. de Sève remarked, that it was induced to bite by some particular odour. When laid hold of, the cartilage at the end of its nose, curled up while it smelled, and according to the odour received, it either bit or did not bite. This experiment was tried upon a number of people; and, it is singular, whenever it bit one person, it always continued to bite him. Some people were so disagreeable to it, that it endeavoured to make its escape in order to bite them; and, when it could not lay hold of the legs, it darted upon their shoes or petticoats. It even used several artifices to come near those whom it wished to bite.

M. Vosmaër, in his description of a flying squirrel, makes the following pertinent remarks:

"M. de Buffon," says M. Vosmaër, "has probably been deceived both with regard to the name and the native country of the surikate, which was last summer transmitted by M. Tulbagh to the prince of Orange. It belongs not to America, but to Africa. This small animal, a male and a female of which were directed to

me, but the female died in the passage, was unknown to Kolbe, or at least is not mentioned by him, and appears to be found far up the country only: this inference may be drawn from the governor's letter, which I received at the same time, and where he makes the following remark: *I send by the captain two small animals, a male and a female, to which I can neither give a name nor refer them to any other species; because they were, for the first time, brought from the remote deserts and stony mountains of this vast country. They are very mild and gentle. They feed upon fresh meat, either boiled or raw, eggs, and ants. I hope they will arrive in life; for, I imagine, they were never hitherto seen in Europe.*"

The evidence of M. Tulbagh is positive, and M. de Vosmaër's remark is just; for, though I had this animal alive for a long time, I received its name and country from no better authority than an animal merchant, who told me he had purchased it in Holland under the name of *surikate*, and that it came from Surinam. We are now certain that it is neither found in Surinam nor in the other provinces of South America, but in the mountains of Africa above the Cape of Good Hope; and, as to the name, it is of little moment: it can be changed when we receive better information.

THE TARSIER, OR WOOLLY JERBOA*.

WE accidentally procured this animal from a person who could neither tell its name, nor from whence it came. It is remarkable for the excessive length of its hind-legs. The bones of the feet, and particularly those which compose the upper part of the *tarsus*, are prodigiously long; and it is from this distinctive character that we have derived the name of the animal. The tar-

* CHARACTER SPECIFICUS †.

LEMUR TARSIER. L. caudatus cinereus, cauda gracili subnuda apice subfloccosa, pedibus posterioribus longissimis. — *Shaw's Gen. Zool.* i. p. 105.

Lemur (Tarsier) cauda gracili nuda apice subfloccosa, tibiis posticis nudis. — *Erxleb. Mamm.* p. 71.

DIDELPHIS MACROTARSUS. D. cauda gracili nuda apice subfloccosa, plantarum talis elongatis nudis ungue pollicari plano.—*Linn. Syst. Nat. Gmel.* i. p. 109.—*Schreb.* iii. pl. 155.

LE TARSIER. — *Buff. Hist. Nat. par Sonn.* xxxii. p. 160, pl. 12.

TARSIER MAUCAUCO. — *Penn. Hist. Quadr.* i. p. 231.

TARSIER. — *Shaw's Gen. Zool.* i. p. 105, pl. 35.

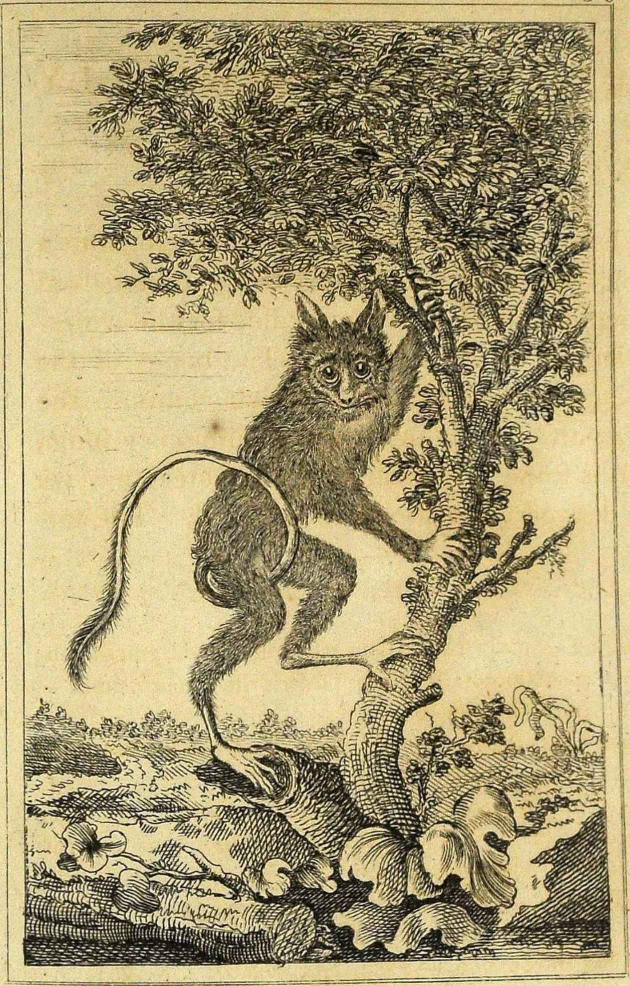
HABITAT

in Amboina. *W.*

† For the generic character, see Loris.

2

Plate 299



TARSIER

sier, however, is not the only quadruped whose hind-legs are constructed in this manner. The tarsus of the Egyptian jerboa is still longer. Hence the appellation of *tarsier* is only precarious, and ought to be changed as soon as we learn the name which the animal receives in the country where it is produced. The jerboa is found in Egypt, Barbary, and the East Indies. I at first imagined that the tarsier might belong to the same countries, on account of its resemblance to the jerboa. Both these animals are of the size of a middling rat. The hind-legs of both are excessively long, and those before very short. In both, the tail is of a prodigious length, and garnished towards the extremity with long hairs. Both have very large eyes, and erect, large, open ears. In both, the inferior part of the hind-legs is naked, while the rest of the body is covered with hair. As these animals possess, in common, such peculiar characters, it might be presumed that they were neighbouring species, or, at least, species produced by the same climate and country. From a comparison of their other parts, however, this is rendered extremely doubtful. The tarsier has five toes on all his feet, and may be said to have four hands; for his five toes are very long, and well separated. The thumbs of the hind-feet terminate in a flat nail; and, though the nails of the other toes be pointed, they are so short and small, that the animal can use its fore-feet in the same manner as hands. The jerboa, on the contrary, has only four toes, and four long crooked claws on the

fore-feet; and, instead of a thumb, it has only a tubercle without any nail. But, what removes these animals to a greater distance, the jerboa has but three toes, or three large claws on the hind-feet. This distinction is too great for animals nearly allied in species; and it is not impossible that they belong to very distant climates; for the tarsier, by his small size, his four hands, long toes, and small claws, and his long tail and feet, seems to make a near approach to the Murine, Mexican, and Surinam opossums. But we here throw out our doubts only; and shall be highly obliged to any person who can ascertain or remove them, by pointing out the real country and name of this animal *.

* Maucauco with a pointed visage; slender nose, bilobated at the end; eyes large and prominent; ears erect, broad, naked, semitransparent, an inch and a half long; between them, on the top of the head, is a tuft of long hairs; on each side of the nose, and on the upper eyebrow, are long hairs. In each jaw are two cutting, and two canine teeth, which form an exception in this genus. Four long toes and a distinct thumb on each foot; the lower part of each tuberous; the claws sharp pointed, but (except on the two inner toes of the hind-feet) are attached to the skin: the thumbs of the hind-feet are broad, and greatly dilated at their ends: hairs on the legs and feet short, white, and thin: tail almost naked, the greater part round and scaly, like that of a rat; but grows hairy towards the end, which is tufted. . . . . . . hair soft, but not curled; of an ash colour mixed with tawny.

Length, from nose to tail, near six inches; to the hind toes eleven and a half, the hind-legs, like those of the jerboa, being of a great length; the tail nine inches and a half long. Described from two fine specimens in the cabinet of Dr. Hunter.—*Penn. Hist. Quadr.* i. p. 231, 3d edit. *W.*

29

HAMSTER.

THE HAMSTER, OR GERMAN MARMOT*.

THE hamster is the most famous, as well as the most destructive of all rats. We omitted its history, when treating of the other rats, be-

* CHARACTER SPECIFICUS.

Mus Cricetus. M. buccis sacculiferis, corpore subtus aterrimo, cicatricibus lumbaribus detonsis. — *Linn. Syst. Nat. Gmel.* i. p. 137. — *Pall. Glir.* p. 83. — *Schreb.* iv. pl. 198. A.

Mus cauda mediocri, auriculis rotundatis, corpore subtus nigro, lateribus rufescentibus: maculis tribus albis. — *Linn. Syst. Nat.* xii. 1, p. 82.

Glis (cricetus) corpore subtus nigro, lateribus rufescentibus maculis utrinque tribus albis. — *Erxleb. Mamm.* p. 363.

Glis (Marmota Argentoratensis) ex cinereo rufus in dorso, in ventre niger, maculis tribus ad latera albis. — *Briss. Quadr.* p. 166.

Cricetus. — *Gesn. Quadr.* p. 738. — *Ray's Quadr.* p. 221.

Le Hamster. — *Buff. Hist. Nat. par Sonn.* xxxii. p. 168, pl. 13.

Hamster Rat. — *Penn. Hist. Quadr.* ii. p. 200, pl. 34. — *Shaw's Gen. Zool.* ii. p. 95, pl. 137.

HABITAT

in Germania, Polonia, Ukrania, in locis arenosis.

The hamster is very common in the southern countries of Russia, principally in the most fertile and best cultivated lands. It is, however, by no means rare in the deserts of Tar-

cause at that time we had not an opportunity of seeing and examining the animal. For the knowledge we have now acquired of it, we are obliged to the marquis de Montmirail and M. de Vaitz, who sent us two live hamsters, accompanied with an instructive memoir * con-

tary and the southern parts of Siberia to the Jenissey, but never beyond that river. In the desert, they live a wandering life, preferring those spots which abound with liquorice, the seeds of that plant serving them for food. The Russian horse-dealers are said to dry and powder the flesh of the hamster, and give it, mixed with oats, to their horses, which soon makes them fat, but injures their health.

Pallas remarked a black variety of hamster in Russia. It is more frequently met with about Simbirsk than the common kind. The black hamsters often couple with the others, and it is not uncommon to find some all black, and others of mixed colours in the same brood. They disappear a little farther to the south, near Samara, and it is difficult to assign a reason for this, since it cannot be attributed to climate in so short a distance. The hamsters of this black variety have, in general, the mouth, nose, edge of the ears, the bottom of the feet, and often also the end of the tail, of a white colour.

W.

Marmot with large rounded ears, and full black eyes. The colour of the head and back is a reddish brown, and that of the cheeks white. Beneath each ear there is a white spot, another on each shoulder, and a third near the hind-legs. The breast, upper part of the fore-legs, and the belly, are black. The tail is short and almost naked. It has four toes and a fifth claw on the fore-feet, and five toes behind. The length of the body is about nine inches, and that of the tail three. — *Pennant's Synops of Quad.* p. 271.

* I refer you to a pretty full memoir concerning the hamster which I received from M. de Waitz, minister of state to the Landgrave of Hesse-Cassel, who, to his brilliant talents for state affairs, joins an ardent desire for the improvement of na-

cerning their manners and dispositions. We fed one of these animals during several months, in order to examine it attentively, and afterwards dissected it, with a view to compare its internal structure with that of other rats. In its anterior parts, it has a greater resemblance to the water rat than to any other animal. It resembles him still more in the smallness of its eyes and the fineness of its skin. But the tail, instead of being long, is shorter than that of the compagnol, or short-tailed mouse, which, as formerly remarked, has a great similarity to the water rat in its internal conformation. The hamster seems to be, with regard to the short-tailed field-mouse, what the surmulot, or Norway rat, is to the long-tailed field-mouse. All these animals live under ground, and appear to be animated with the same instinct. They have nearly the same manners, and particularly that of collecting magazines of grain in their holes. We shall not, therefore, enlarge so much on the resemblances in figure and dispositions, as upon the differences which distinguish the hamster from all the other rats of which we have formerly treated.

Agricola * is the first writer from whom any

tural history. . . . He, at the same time, transmitted to me two of these animals alive, which I shall send you by the first opportunity.—*Lettre de M. le Marquis de Montmiraïl à M. de Buffon*, 31 *Juillet*, 1762.

* Hamster, quem quidam cricetum nominant, existit iracundus et mordax, adeo ut si eum eques incaute persequatur, soleat prosilire et os equi appetere, et si prehenderit mordicus tenere. In terræ cavernis habitat. . . . pedes habet admo-

genuine information can be derived concerning the hamster; to which Fabricius * added a few

dum breves; pilis in dorso color est fere leporis: in ventre niger, in lateribus rutilus, sed utrumque latus maculis albis tribus numero distinguitur. Suprema capitis pars ut etiam cervix eumdem quem dorsum habet colorem. Tempora rutila sunt; guttur est candidum. . . . pili autem sic inhærent cuti ut ex ea difficulter evelli possint. . . . atque ob hanc causam et varietatem pelles ejus sunt pretiosæ: multa frumenti grana in specum congerit, et utrinque dentibus mandit. . . . Ager Turingiæ eorum animalium plenus ob copiam et bonitatem frumenti; *Georg. Agricola,* de animantibus subterraneis.—*Apud. Gesn. Hist. Quad.* p. 738.

* Hamester animal est agreste sub terra habitans. . . . colore vario, ventre non candido sed potius nigerrimo. . . . Dentes habet in anterioris oris ima supremaque parte binos, prominentes et acutos, malas laxas et amplas, ambas exportando importandoque replet: ambabus mandit. . . . Cum terram estodit, primum anterioribus pedibus (quos talpæ simimiles habet brevitate sed minus latos) eam retrahit, longius progressus, ore exportat. Cuniculos ad antrum plures agit cubiti profunditate, sed admodum angustos. . . . Antrum intus extendit ad capienda frumenta. . . . Messis tempore grana omnis generis frumenti importat. . . . Terra ante cuniculos erecta non tumuli modo assurgit, ut talparum tumuli, sed ut agger dilatatur. . . . Vescitur hoc animal frumento omnis generis, et si domi alatur pane ac carnibus. In agro etiam mures venatur. Cibum cum capit in pedes priores erigitur. . . . Quamvis autem corpore exiguum sit, natura tamen est pugnax et temerarium. Lacessitum quidquid ore gestat pulsatis utroque pede malis subito egerit, recta hostem invadens, spiritu oris et assultu protervum ac minax. . . . . Nec terretur facile, etiam si viribus impar ei sit quem petit. . . . . Vidi ipse, cum equum assultando naribus corripuisset non prius morsum dimisisse quam ferro occideretur. . . . . Hamestri pellis maxime durabilis. . . . . In Turingia et Misnia hoc animal frequens, non omnibus tamen in locis, sed in uberrimis et fertilissimis. In Lusacia circa Radeburgum, e satis panici effo-

facts. But Schwenckfeld * has done more than all the other authors put together. He dissected the hamster, and gave a description of

ditur; Mulbergi ad Albim in vinetis reperitur, nam maturis quoque uvis vescitur. — *Georg. Fabricius, apud Gesn. Hist. Quadr.* p. 739 et 740.

* Porcellus frumentarius, hamster minor paulo cuniculo. Longitudo dodrantalis et palmi unius. Pilis in dorso fere leporis est colore. Gula, venter, et pedes interiores nigra sunt. Rubet in lateribus et circa caudam, quæ coloris murini tres digitos longa. Maculæ albæ sub auribus, juxta rostrum, supra armos et coxam. Pedes admodum breves, digitis et unguiculis albidis quinis utrinque. In pedum planta, seu parte digitorum inferiore, tubercula veluti calli ubique eminent. Oculi splendidi, nigri, elegantes. Dentes habet ut lepus anteriores binos incisores et laterales. Lingua mollis spongiosa. E bucculis vesiculæ utrinque amplæ membraneæ sub cute porriguntur, quæ sensim gracilescentes dorso tenui ligamento alligantur. Has instar sacci messis tempore granis tritici, siliginis, et aliis seu folles quospiam infarcit, atque in suos cuniculos comeatum in futuram hyemem congerit ac reponit.

Pulmonibus candidis quatuor sunt lobi.

Cor renibus paulo majus mucrone obtusiore. Hepar triplicatum apparet, unum super alterum impositum. Inferior pars dorso adjacens duos obtinet lobulos. Media, quæ maxima, integra absque incisuris integrum abdomen secundum latitudinem occupans ventriculum ex parte amplexatur. Superior portio divisa aliis incumbens diaphragmati proxime subjacet. Fel nullum conspicere licuit.

Ventriculus ei duplex. Unus candidus rotundiusculus, cui alter per isthmum annectitur longiusculus, sinistrum hypochondrium occupans, hinc prope isthmum œsophagus inseritur, alteri sub dextro hypochondrio intestina adhærent. In utroque reperiebatur chylus candidus, pulticulæ farinaceæ similis, crassior tamen in sinistro.

Intestina gracilia flavent; ubi desinunt, incipit cæcum anfractuosum amplum, hinc crassiora ad cæruleum vergunt colo-

it, which corresponds almost in every article with ours; yet he is hardly quoted by our more modern naturalists, who content themselves with copying Gesner. In justice to this author, we have inserted his remarks entire; and when to these we add the observations of M. de Waitz, the history of this animal will be complete.

"The habitations of the hamster are differently constructed, according to their sex, age, and the quality of the ground. The house of the male has an oblique passage, at the mouth of which there is a considerable heap of earth. At a distance from this oblique passage, there is a hole which descends perpendicularly into the chambers of the lodging. No earth appears near this hole; which renders it probable that the oblique passage is dug from without, and that the perpendicular hole is begun from below, and continued upward.

"The house of the female has likewise an

rem. Excernit pilulas longiusculas instar murium. Lien coloris sanguinei soleam fere humanam repræsentat.

Renes bini phaseoli magnitudine et figura. Vesicula candida pisum Italicum æquat, rotunda lagenulæ instar.

Parit quinque sexve, uno partu.

In terræ cavernis habitat, agri vastator et Cereris hostis. Autumno multa frumenti grana in specum congerit, et utrinque dentibus mandit.

Admodum pinguescit; ob id porcellis Indicis non inepte comparatur.

In cibum non recipitur; sed pelles consuuntur ad vestimenta.

De caverna sua aqua-fervente seu frigida copiose infusa expellitur.

oblique passage, and, at the same time, two, three, and not unfrequently eight perpendicular holes, in order to allow her young to go out and in at pleasure. The male and female have each a different dwelling, and the female makes her's deeper than the male.

" At the distance of a foot or two on each side of the perpendicular holes, the hamsters of both sexes, according to their age, and their number of young, dig one, two, three, and sometimes four cavities in the form of vaults, both above and below, which are more or less capacious in proportion to the quantity of their provisions.

" The perpendicular hole is the common passage: the oblique one is made for the purpose of carrying out the earth. As the declivity of this oblique passage is more gentle in one cavity than in another, it may likewise promote a circulation of air in those subterraneous habitations. In the cavern where the female brings forth her young, there is no magazine of grain, but a nest of straw and herbs. The depth of the caverns is various: a young hamster, in the first year, makes his cavern not above a foot deep; but the old ones frequently dig to the depth of four or five feet. The whole habitation, including the passages and caverns, is sometimes from eight to ten feet in diameter.

" These animals provide their magazines with dry clean grain, corn in the ear, peas, and beans, in their pods, and afterwards carry out the husks and pods by the oblique passages.

In transporting their provision, they use the pouches in their cheeks, each of which will hold a quarter of an English pint.

"The hamster begins to lay up provisions about the end of August. When his magazines are filled, he covers them, and carefully shuts up all the avenues with earth, which prevents his retreat from being easily discovered, and it is only to be recognised by the heap of earth near the oblique passage mentioned above; after which, the perpendicular holes must be investigated. The most common method of seizing these animals is to dig them out, which is a laborious task, on account of the extent and depth of their holes. A person, however, who accustoms himself to this species of hunting, fails not to profit by it; for, in autumn, which is the proper season, he generally finds in each habitation, beside the fur of the animal, two bushels of good grain. The hamsters produce twice or thrice in a year, and bring forth five or six, and often more, at each litter. In some years they appear in prodigious numbers, and, in others, hardly any of them are to be seen. It is in moist years that they multiply so greatly; and this numerous multiplication occasions a dearth, by the general devastation they make among the corn.

"At the age of six weeks or two months, the hamsters begin to dig their habitations; but they neither couple nor produce during the first year.

"The polecats destroy great numbers of

the hamsters, and take possession of their holes.

"The hamsters are commonly brown on the back, and white on the belly. Some of them, however, are gray; and this difference may be the effect of advanced age. Some of them are also totally black."

Like the mulet, or long-tailed field-mouse, the hamsters mutually destroy each other. Of two kept in a cage, the female killed the male in one night, and, after cutting the muscles which fix the jaws to each other, devoured a part of the intestines. They produce several times in the year, and are so destructive, that, in the states of Germany, a price is set upon their heads. They are so numerous in that part of the continent, that their fur is a considerable article of commerce.

All these facts, which we have extracted from the memoir of M. Waitz, and the remarks of M. de Montmirail, appear to be certain, and correspond with our other sources of information concerning the hamsters. But it is not equally certain, as mentioned in the same memoir, that they remain in a torpid state during the winter, and revive in the spring. The hamster which we kept last winter (1762, 3) in an apartment without fire, and where the cold frequently congealed water, never became torpid, but moved about and eat its ordinary food. But several kinds of dormice, which were likewise in our possession, became torpid in a much

smaller degree of cold. Hence the hamster neither approaches the dormice nor marmot by this character; and some of our naturalists have improperly called it the *marmot of Strasburg*, though it sleeps not like the marmot, nor is found in the neighbourhood of Strasburg.

In the *Gazette de Littérature*, of the 13th of September, 1774, we find the following observations concerning the hamster, extracted from a German publication by M. Sulzer.

"The corn-rat, in German, *hamster*, cannot be more commodiously described than at Gotha, where, in one year, 11,574 skins of it, in another, 54,429, and, in a third, 80,139, have been brought to the town-house. In general, this animal inhabits temperate countries. When irritated, its heart beats 180 times in a minute. The weight of the body is to that of the brain as 1 to 193.

"These animals lay up magazines, which often consist of twelve pounds of grain. In winter, the female sinks very deep in the earth. The male is a bold animal, and defends himself against dogs, cats, and men. He is naturally quarrelsome, agrees not with his own species, and sometimes, in a transport of fury, slays his own family. He devours the feeble individuals of his species, as well as mice and birds; and yet he feeds upon all kinds of herbs, fruits, and seeds. He drinks little; and the female remains longer in her winter retreat than the male. The former goes four weeks

with young, and often produces six at a litter. In a few months, the females become fertile. The rat called *iltis* * kills the hamster.

"When this animal is in a torpid state, neither respiration, nor any kind of feeling, can be perceived. The heart, however, beats fifteen times in a minute, which is discovered by opening the chest. The blood continues to be fluid, and the intestines are not irritable. Even an electrical shock does not awake him: in the open air, he is never reduced to a torpid state."

M. Sulzer mentions the gradual manner in which this animal recovers his vigour and activity.

"The utility of the hamster is confined to the destruction of mice; but he himself is much more mischievous †."

We wish that M. Sulzer had marked the precise degree of cold, or want of air, which renders these animals torpid; for we still maintain, what was formerly remarked, that a hamster confined in a cage, and in a room where water froze, was not reduced to a torpid state during the winter 1763. This fact will receive additional confirmation from the following observations of M. Allamand, which he has published at the end of the Dutch edition of my work.

* The *iltis* is the polecat, and not a rat, as this author alleges.

† Observat. sur le Rat de Blé, par M. Sulzer. — *Gazette de Littérature*, 13 Sept. 1774.

Addition to the History of the Hamster, by M. Allamand.

The hamster is a quadruped of the mouse kind, which sleeps during the winter, like the marmots. The legs and neck are short; the head is thickish; and the mouth is garnished on each side with whiskers. The ears are large and almost naked. The tail is short, and one half of it naked. The eyes are round and prominent. The colour of the hair is a mixture of red, yellow, white, and black. These characters exhibit not the most alluring picture; and the manners of the animal are still more disgusting. He has no love but for himself, and possesses not a single social quality. He attacks and devours every animal he is capable of conquering, not excepting his own species. Even the instinct which draws him to the other sex, lasts only a few hours; at the end of which the female would not meet with a better fate, if she did not take the precaution of avoiding, or of killing him first. To these odious qualities, however, Nature has joined others, which, without rendering him more amiable, make him deserve a distinguished rank in the history of animals. He belongs to the small number of those which pass the winter in a torpid state, and he is the only European animal that is provided with cheek-pouches. His address in making a subterraneous abode, and the industry with which he lays up provisions, merit the attention of the curious.

The hamster inhabits not all soils or climates indifferently. He is neither found in very warm nor in very cold countries. As he lives upon grains, and dwells under the earth, stony, sandy, or argillaceous soils are as inconvenient to him as meadows, forests, and marshy grounds. He requires a soil which is easily pierced, and yet so tenacious as not to tumble down. He likewise chooses countries which abound in all kinds of grain, that he may not be obliged to seek his food at great distances, for which he is not well qualified. In Thuringia, the soil of which possesses all these qualities, the hamsters are more numerous than in any other country.

The habitation which the hamster digs to the depth of three or four feet, consists of more or fewer apartments, according to the age of the animal. The principal chamber is lined with straw, and serves him for a lodging. The others are destined for the preservation of provisions, of which he amasses great quantities during the autumn. Each hole has two apertures; the one descends obliquely, and the other, through which the animal goes out and in, is perpendicular.

The holes of the females, who never live with the males, are somewhat different. In those where she brings forth, there is seldom above one chamber for provisions; because the short time the young remain with her requires not a great store of food. But, instead of one perpendicular hole, she makes seven or eight, to give free pas-

sage to her young. Sometimes the mother banishes her offspring, and continues to possess this hole; but she commonly digs another, and lays up as much provisions as the season permits her to collect.

The hamsters copulate about the end of April, when the males enter the apartments of the females, where they remain only a few days. If two males happen to meet in the same hole, a furious combat ensues, which generally terminates in the death of the weakest. The conqueror takes possession of the female, and both, though at every other period they persecute and kill each other, lay aside their natural ferocity during the few days their amours continue. They even mutually defend each other against aggressors. When a hole is opened at this period, and the female perceives that her husband is about to be carried off, she darts upon the ravisher, and makes him feel the fury of her vengeance, by inflicting deep and painful wounds.

The females bring forth twice or thrice every year. Their litter is never fewer than six, and oftener from sixteen to eighteen. The growth of these animals is very rapid. At the age of fifteen days, they already begin to dig the earth. Soon after, the mother banishes them from her habitation; so that, at the age of about three weeks, they are abandoned to their own management. The mother, in general, discovers little tenderness for her offspring. She who, in the

season of love, defends her husband with courage, flies in the most dastardly manner when her family is threatened with danger. Her only solicitude is to provide for her own safety. With this view, when pursued, she digs deeper into the earth, which she performs with an amazing quickness. The young would willingly follow her; but she is deaf to their cries, and even shuts the hole which she had made.

The hamster feeds upon all kinds of herbs, roots, and grains, which the different seasons produce. He even eats the flesh of such animals as he can conquer. As he is not adapted for long journeys, his magazine is first stocked with the provisions which are nearest his abode. This is the reason why some of his chambers are frequently filled with one kind of grain only. When the harvest is reaped, he goes to a greater distance in quest of provisions, and carries every article he can find, without distinction, to his granary. To facilitate the transportation of his food, Nature has furnished him with two pouches in the inside of each cheek. On the outside, these pouches are membranous, smooth, and shining; and, in the inside, there are a great many glands, which continually secrete a certain fluid, to preserve their flexibility, and to enable them to resist any accidents which may be occasioned by the roughness or sharpness of particular grains. Each of these cheeks is capable of containing an ounce and a half of grain, which, on his return to his habitation, he empties, by press-

ing his two fore-feet against his cheeks. When we meet a hamster having his cheeks filled with provisions, it is easy to seize him with the hand, without the risk of being bitten; because, in this condition, he has not the free motion of his jaws. But, if he is allowed a little time, he soon empties his pouches, and stands upon his defence. The quantity of provisions found in the holes depends on the age and sex of the inhabitant. The old hamsters often amass a hundred pounds of grain; but the young and the females content themselves with a quantity much smaller. Their object in laying up provisions is not to nourish them during the winter, which they pass in sleep and without eating, but to support them after they awake in the spring, and previous to their falling into a torpid state.

At the approach of winter, the hamsters retire into their subterraneous abodes; the entry to which they shut up with great address. There they remain in perfect tranquillity, and feed on their provisions, till the frost becomes severe, when they sink into a torpid state, which resembles a profound sleep. When, during this period, the holes are opened, which we know by a small eminence of earth raised near the oblique passage formerly described, we find the hamster lying upon a bed of soft straw. His head is bended under his belly, between the two fore-legs, and those behind rest upon his muzzle. The eyes are shut; and, when the eyelids are forced open, they instantly close again. The

members are stiff, like those of a dead animal, and the whole body feels as cold as ice. Neither respiration nor any other sign of life can be perceived. When dissected in this situation, we see the heart alternately contracting and dilating. But this movement is so slow, that the pulsations exceed not fifteen in a minute; though, when the animal is awake, the heart beats a hundred and fifty strokes during the same time. The fat has the appearance of being coagulated. The intestines are as cold as the external parts of the body, and discover not the smallest irritability upon the application of spirit of wine or oil of vitriol. During this operation, the animal seems to feel very little. He sometimes opens his mouth, as if he wanted to respire. But his lethargy is too strong to admit of his wakening entirely.

The lethargy of the hamster has been ascribed solely to a certain degree of cold: this may be true with regard to the dormice and bats. But experience proves, that, in order to render the hamster torpid, he must also be excluded from all communication with the external air: for, when a hamster is shut up in a cage filled with earth and straw, and exposed in winter to a degree of cold sufficient to freeze water, he never becomes torpid. But, when the cage is sunk four or five feet under ground, and well secured against the access of air, at the end of eight or ten days he is equally torpid as if he had been in his own burrow. If the cage is brought up to the surface, the hamster will awake in a few

hours, and resume his torpid state when put below the earth. This experiment may be repeated with the same success, as long as the frost continues. We have a farther proof that the absence of the air is one of the causes of torpidness in the hamster: when brought up from his hole, in the coldest weather, and exposed to the air, he infallibly awakes in a few hours. This experiment succeeds equally either in the night or day, which proves that the light forms no part of the cause.

It is curious to observe the hamster passing from a torpid to an active state. He first loses the rigidity of his members, and then makes a profound respiration, but at long intervals. His legs begin to move, he opens his mouth, and utters disagreeable and rattling sounds. After continuing these operations for some time, he opens his eyes, and endeavours to raise himself on his legs. But all these movements are still reeling and unsteady, like those of a man intoxicated with liquor. He, however, reiterates his efforts, till he is enabled to stand on his legs. In this attitude he remains fixed; as if he meant to reconnoitre, and repose himself after his fatigues. But he gradually begins to walk, to eat, and to act in his usual manner. This passage, from a torpid to an active state, requires more or less time, according to the temperature of the air. When exposed to a cold air, he sometimes requires more than two hours to awake, and, in a more temperate air, he accomplishes his purpose in less than one hour. It is probable that

this change is produced imperceptibly when the animal is in his hole, and that he feels none of the inconveniences which arise from a sudden and forced revivirscence.

The life of a hamster is divided between the necessary cares of satisfying his natural appetites, and the fury of combating. He seems to have no other passion but that of rage, which induces him to attack every animal that comes in his way, without attending to the superior strength of the enemy. Ignorant of the art of saving himself by flight, rather than yield, he allows himself to be beat to pieces with a stick. If he seizes a man's hand, he must be killed before he quits his hold. The magnitude of the horse terrifies him as little as the address of the dog, which last is fond of hunting him. When the hamster perceives the dog at a distance, he begins with emptying his cheek-pouches, if they happen to be filled with grain. He then blows them up so prodigiously, that the size of the head and neck greatly exceeds that of the rest of the body. In fine, he raises himself on his hind-legs, and, in this attitude, darts upon the enemy. If he catches hold, he never quits it but with the loss of his life. But the dog generally seizes him behind, and strangles him. This ferocious temper prevents the hamster from being at peace with any other animal. He even makes war against his own species, not excepting the females. When two hamsters rencounter, they never fail to attack each other, and the stronger always devours the weaker. A combat between

a male and a female commonly lasts longer than between two males. They begin by pursuing and biting each other; then each of them retires to a side, as if to take breath; a little after, they renew the combat, and continue to fly and to fight till one of them falls. The vanquished uniformly serves for a repast to the conqueror.

THE JERBOAS*.

JERBOA is a generic name employed to denote those animals which are remarkable for the disproportion between the hind and fore-legs, the latter not exceeding the length of a mole's paws, and the former resembling the legs of a bird. In this genus, we are acquainted with four species, or distinct varieties: 1. The tarsier, or woolly jerboa, formerly mentioned, which is certainly a particular species, because it has five toes on each foot, like those of a monkey. 2. The jerboa, properly so called †, which has four

* CHARACTER GENERICUS.

Dentes primores utrinque duo.
Pedes anteriores brevissimi; posteriores longissimi.
Claviculæ perfecte.

† The Egyptian jerboa, with thin, erect, and broad ears, full and dark eyes, and long whiskers. The fore-legs are an inch long, with five toes on each, the inner, or thumb, being scarce apparent; but that, as well as the rest, furnished with a sharp claw. The hind-legs are two inches and a quarter long, thinly covered with hair, and exactly resembling those of a bird; three toes on each foot, covered above and below with hair: the middle toe is the longest, and on each is a pretty long sharp claw. The length, from nose to tail, is seven inches and one quarter; the tail ten inches, terminated with a thick black tuft of hair; the tip white. The rest of the tail

toes on the fore-feet, and three on the hind. 3. The alagtaga *, whose legs are constructed like those of the jerboa, but which has five toes

is covered with very short coarse hair. The upper part of the body is thin, or compressed sideways. The part about the rump and loins is large. The head, back, sides, and thighs, are covered with long hair, ash-coloured at the bottom, and pale tawny at the ends. The breast and belly are whitish, and the hair long and soft.—*Pennant's Synops. Quadr.* p. 295.

Μυς διπους. — *Theophr. opusc.* p. 295; *Ælian. Hist. Anim.* lib. x. c. 26.

Mus bipes Plinii; lib. xv. c. 65.

Jerboa, or *Yerbo*, the Arabian name of this animal. — *Shaw's Travels*, p. 248; *Texeira's Travels*, p. 21.

Gerbua. — *Edwards's Gleaning*, p. 219; *Plaidsted's Journal*, p. 59.

Mus jaculus, cauda elongata floccosa, palmis subpentadactylis, femoribus longissimis, brachiis brevissimis. — *Linn. Syst. Nat.* p. 86; *Hasselquist*, p. 198.

Gerboise. — *Voyage de Paul Lucas*, tom. ii. p. 73.

* Siberian jerboa, with very long, transparent, narrow ears, long whiskers, and five toes on the fore-feet, three on the hind-feet, pointing forward, and a fourth behind, about an inch above the heel. The colour of the upper part of the body is tawny, and of the lower, whitish. In form of body, legs, and tail, it agrees with the Egyptian jerboa. — *Pennant's Synops. Quadr.* p. 296.

Alagtaga is the Tartarian name of this animal, which, according to Messerchmid, signifies *an animal which cannot walk*. The word *alagtaga*, however, appears to be nearly the same with *letaga*, which is applied to the flying squirrel. Hence, I am inclined to believe, that *alagtaga*, as well as *letaga*, are generic, rather than specific names, and that they denote a *flying animal*, especially as Strahlenberg, quoted by Gmelin, calls this animal the *flying hare*.

Cuniculus seu lepus Indicus, *utias* dictus. — *Aldrov. de Quad.* digit. fig. p. 395. — *Nota*, 1. Linnæus and Edwards

on the fore-feet and three on the hind, with a spur, that may pass for a thumb, or fourth toe, much shorter than the others. 4. The *daman Israel* *, or *lamb of Israel*, which may be the same animal called *mus longipes* by Linnæus †, and which has four toes on the fore-feet, and five on those behind.

The head of the jerboa has a great resemblance to that of the rabbit; but its eyes are larger, and its ears shorter, higher, and broader, in proportion to its size. The nose is flesh-coloured and naked; and the muzzle is thick and short. The opening of the mouth is very small; the upper jaw is very broad, and the under narrow and short. The teeth are like those of the

have improperly referred this figure to the jerboa, though, by the spur, or fourth toe on the hind-feet, which is very conspicuous, it belongs to the species of alagtaga. *Nota*, 2. Aldrovandus was wrong in denominating this animal *utias*, which is an American word, and probably the same with agouti.

Cuniculus pumilio saliens, cauda longissima. — *Gmelin, Nov. Com. Acad. Petrop.* tom v. tab. 11, fig. 1.

Cuniculus pumilio saliens, cauda anomala longissima. — *Briss. Quad.* p. 103.

Flying hare. — *Strahlenberg; Hist. Russ.* p. 370.

* *Daman Israel*, lamb of the children of Israel. — *Shaw's Travels.*

Animal quoddam pumilo cuniculo non dissimile, sed cuniculis majus quod *agnum filiorum Israel* nuncupant. — *Prosp. Alpin. Hist. Ægypt.* lib. iv. cap. 9, 232.

† Mus longipes, cauda elongata vestita, palmis tetradactylis, plantis pentadactylis, femoribus longissimis. — *Linn. Syst. Nat.* p. 84. The word *femoribus* is here improperly applied; for the metatarsi, or first bones of the foot alone, are extremely long in this animal.

rabbit; and the whiskers round the mouth are composed of long black and white hairs. The fore-feet are extremely short, and never touch the ground, being used only as hands to convey victuals to the mouth. These hands have four fingers, armed with claws, and the rudiments of a fifth without any claw. The hind-feet have only three toes, of which the middle one is longest, and all three are armed with claws. The tail is three times longer than the body; it is covered with small stiff hairs, of the same colour with those on the back, and the extremity of it is garnished with longer, softer, and more bushy hair. The legs are naked and flesh-coloured, as well as the nose and ears. The top of the head and back are covered with reddish hair, and the flanks, the under part of the head, the throat, the belly, and the inside of the thighs, are white: below the reins and near the tail there is a large, black, transverse band, in the form of a crescent *.

The alagtaga is smaller than a rabbit. His ears are long, broad, naked, thin, transparent, and spread over with very conspicuous blood-vessels. The upper jaw is much larger than the under, but blunt and pretty broad at the extremity. It has large whiskers round the mouth. The teeth are like those of a rat. The eyes are large; and

* The following are the dimensions of this animal, as measured by Hasselquist: Magnitudo corporis ut in mure domestico majore. Mensuratio capit. poll. 1 corp. poll. 2½ caud. spith. 1½ post. ped. spith. ½ anter. infra pollicem. Myst. longiss. poll. 3.

the iris and pupils are brown. The body is narrow before, broad, and almost round behind. The tail is very long, not so thick as a small finger, and two thirds of it is covered with short stiff hair; on the last third the hairs are longer, more bushy, softer, and become longer toward the extremity, where they form a kind of tuft, which is black at the beginning, and white at the end. The fore-feet are very short, and have five toes; those behind are very long, and have only four toes, three of which are placed before, and the fourth, which is a thumb, stands at a distance from the others. All these toes are armed with claws, which are shorter in the fore than in the hind-feet. The hair of this animal is soft, pretty long, yellow on the back, and white on the belly *.

From comparing these two descriptions, the first of which is taken from Edwards and Hasselquist, and the second from Gmelin, it appears that the jerboa and alagtaga resemble each other in a striking manner. The jerboa is only smaller than the alagtaga, and has but four toes on the

* The following are the dimensions of this animal, as measured by Gmelin: Longitudo ab extremo rostro ad initium caudæ poll. 6; ad oculos poll. 1. Auricularum poll. $1\frac{1}{2}$; caudæ poll. $8\frac{1}{2}$; pedum anteriorum ab humero ad extremos usque digitos poll. $1\frac{1}{3}$ pedum posteriorum a suffraginibus ad initium usque calcanei poll. 3; a calcaneo ad exortum digiti posterioris poll. 1; ab exortu digiti posterioris ad extremos ungues poll. 2. Latitudo corporis anterioris poll. $1\frac{1}{4}$ posterioris poll. 3. auricularum poll. $\frac{1}{2}$.

fore-feet, and three on the hind, without any spur; while the alagtaga has five toes on the fore-feet, and three and a spur on the hind-feet. But I suspect that this difference is not constant; for Dr. Shaw, who has given a figure and description of a Barbary jerboa, represents it with a spur or fourth toe on the hind-feet; and Mr. Edwards remarks, that he carefully examined two jerboas which he saw in England, and could discover no spur. Hence this character, which might serve as a specific distinction between the jerboa and alagtaga, by not being constant, answers no purpose, but marks rather the identity than the diversity of the species. Neither does the difference in size prove them to be distinct species: Edwards and Hasselquist may have described only young jerboas, and Gmelin an old alagtaga.

Two circumstances, however, render this matter still doubtful; the proportion of the tail, which is much larger in the jerboa than in the alagtaga, and the difference of the climates which they inhabit. The jerboa is common in Circassia *, Egypt †, Barbary, and Arabia; and the

* In Circassia, Persia, Arabia, and the environs of Babylon, there is a kind of field-mouse, called *jerbuach* in the Arabic language, which is nearly of the size and colour of the squirrel. . . . . When it leaps, it darts five or six feet above the ground. . . . . It sometimes quits the fields, and takes up its abode in the houses.—*Voyage d'Olearius*, p. 177.

† In Egypt, I saw two small animals, that ran very quickly on their hind-feet, which were so long that the creatures

alagtaga in Tartary, along the Wolga, and as far as Siberia. It is seldom that the same animal inhabits climates so different; and, when it does happen, the species undergoes great changes: this we presume to be the case with the jerboa, of which, notwithstanding these differences, the alagtaga seems to be only a variety.

These animals generally conceal their hands or fore-feet among the hair; so that, at first sight, they seem to have only two feet. In transporting themselves from place to place, they do not walk, or advance one foot after another, but leap nimbly to the distance of three or four feet. When reposing themselves, they sit on their knees, and sleep only during the day. They eat grain and herbage, like the hare. Their dispositions are mild, and yet they can never be tamed beyond a certain point. They dig holes in the earth like the rabbits, and in a much shorter time. About the end of summer, they lay up herbage in their magazines, where, in cold countries, they pass the winter.

As we have had no opportunity of dissecting this animal, we shall subjoin the remarks of M. Gmelin upon its internal structure*.

seemed to be mounted on stilts. These animals burrow like rabbits. I carried off seven of them; two of which I brought to France, where they lived in the royal menagery two years. — *Voyage de Paul Lucas*, tom. ii. p. 74.

* Œsophagus, uti in lepore et cuniculo, medio ventriculo inseritur; intestinum cæcum breve admodum sed amplum est, in processum vermiformem, duos pollices longum abiens. Choledochus mox infra pylorum intestinum subit. Vesica

With regard to the daman, or lamb of the children of Israel, which seems to be a kind of jerboa, because its fore-legs are remarkably shorter than the hind, having never seen this animal, we cannot do better than copy the remarks of Dr. Shaw, who had an opportunity of comparing it with the jerboa, and speaks of them as two distinct species. "The daman," says this author, "is likewise an animal of Mount Libanus, though common in other places of this country. It is a harmless creature, of the same size and quality with the rabbit; and with the like incurvating posture and disposition of the fore-teeth. But it is of a browner colour, with smaller eyes, and a head more pointed, like the marmots. The fore-feet likewise are short, and the hinder are nearly as long in proportion as those of the jerboa. Though this animal is known to burrow sometimes in the ground; yet, as its usual residence and refuge are in the holes and clefts of the rocks, we have so far a

urinaria citrina aqua plena; uteri nulla plane distinctio; vagina enim canalis instar sine ullis artificiis in pubem usque protensa in ano mox cornua dividitur, quæ ubi ovariis appropinquant multas inflexiones faciunt, et in ovariis terminantur. Penem masculus habet satis magnum, cui circa vesicæ urinariæ collum vesiculæ seminales unciam cum dimidio longæ, graciles, et extremitatibus intortæ adjacent. Foramen aut sinus quosdam inter anum et penem, aut inter anum et vulvam nullo modo potui discernere, licet quasvis in indagatione ista cautelas adhibuerim. . . . . Cuniculi Americani, porcelli pilis et voce Marcgr. Fabrica internarum partium ab hoc animali non multum abludunt. — *Gmelin, Nov. Com. Petrop.* tom. v. art. 7.

more presumptive proof, that this creature may rather be the saphan of the Scriptures, than the jerboa. I could not learn why it was called daman Israel, *i. e.* Israel's lamb, as these words are interpreted *." Prosper Alpinus, who mentioned this animal before Dr. Shaw, says, that its flesh makes excellent eating, and that it is larger than the European rabbit. But this last fact seems to be suspicious; for Dr. Shaw has omitted this passage of Prosper Alpinus, though he transcribes all the other remarks of that author.

* Shaw's Travels, p. 248.

THE JERBOA.

WE shall here give a short history of the different species of jerboas, and a particular description of the jerboa of Edwards and Hasselquist. The little differences which may be remarked in this species do not constitute more than a slight variety, the colour and length of the fore-paws, and the claws, not appearing to be constant.

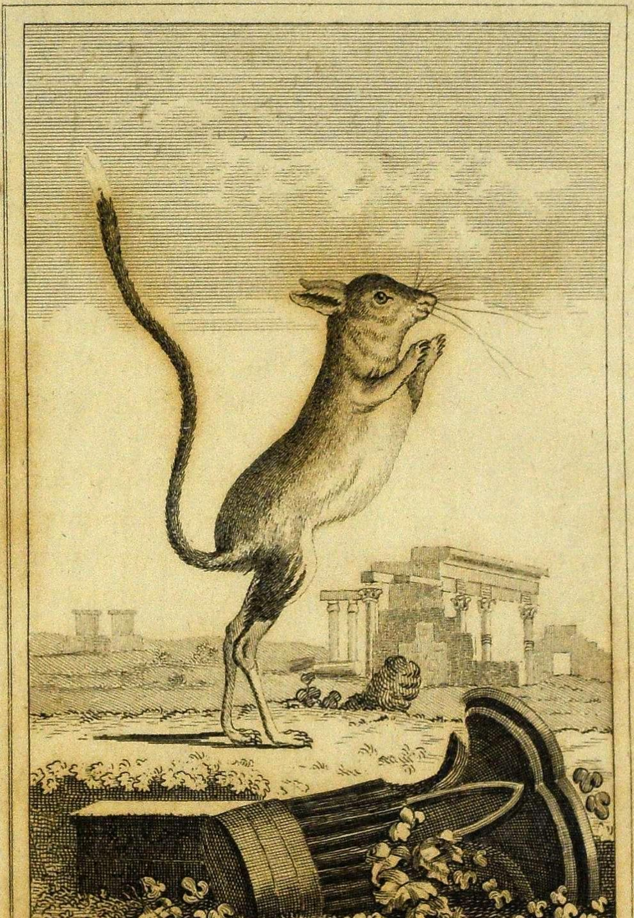
In the desert of Barca there is a jerboa distinct from the above, inasmuch as the body is thinner, the ears longer, round, and nearly of equal size from the top to the bottom; the claws are much shorter, and the colours in general lighter; the band on the thighs is not so apparent; the heels black; the end of the muzzle much flatter *. These distinctions are but very slight, and may be considered as mere varieties.

Jerboas are found in all parts of Africa, from Barbary to the Cape of Good Hope, and we also find them in Arabia and in several other countries of Asia; but it appears that they differ greatly in size, and it is surprising that, among these long-legged animals, some are found twenty, and even

* Note communicated to M. de Buffon, by Mr. Bruce.

58A

Plate 301



JERBOA.

an hundred times larger than the little jerboas of which we have spoken.

"I have seen at the Cape menagery," says M. de Querhoënt, "an animal (caught in the country) which they call *leaping hare*: it is about the size of the European rabbit, with a head somewhat like it; the ears are at least as long; the fore paws are very short and small; they use them to convey any thing to the mouth, but I dont think they are of much service in walking: it generally hides them entirely in its long hair. The hind paws are large and thick; the toes, four in number, are long and separated: the tail is at least the length of the body, and covered with long hairs. The body, the ends of the ears, and the tail, are of a yellowish colour. The eyes are large, black, and prominent. It is fed with lettuce leaves, is very fond of nibbling; and has pieces of wood put into its cage for its amusement *."

Mr. Forster sent us a drawing of this great jerboa, or leaping hare of the Cape (see the plate). The drawing was accompanied with the following remark. "This jerboa," says he, "has five toes before and four behind. The fore claws are black, long, thin, and curved; those behind are brown, thick, short, of a conical shape, and rather curved towards the end. The eye is very large and black; the nose and nostrils are ferruginous. The ears are large, smooth, naked

* Extract from the Journal of the Voyage of M. de Querhoënt.

within, and covered on the outside with short slate-coloured hair. The head resembles that of the little jerboas: it has whiskers round the mouth, and at the angle of the eyes: the legs, or rather the fore arms, are extremely short, and the hands very small: the hind-legs, on the contrary, are very thick, and the feet excessively long. The tail, which is also very long, and covered with hairs, appears thin at its origin, and very thick at the end; it is of a deep fawn colour for the greatest part of its length, and of a tawny brown near the end: the legs and feet are pale tawny mixed with gray: the body and head are of a pale yellow, nearly white; the thighs and belly are yellower: all the upper part of the body, as well as the end of the jaw, the top of the nose, and the hands, are of a reddish tint." In short, we think that this Cape jerboa, described by M. de Querhoënt and Mr. Forster, is the same that M. Allamand has described and figured in the Dutch edition.

It appears, also, that the animal whose history we have given under the name of tarsier, is of the same genus as the jerboas, and that it belongs to the Old Continent; no species of jerboa, either great or small, being found, except in Africa or Asia, we can scarcely doubt that the tarsier belongs to one or other of these parts of the world.

I have seen several figures of jerboas designed after the antique, particularly from an ancient medal of Cyrene which had a jerboa on the reverse, unlike that which Dr. Shaw has described by the name of *daman Israel*; for it

6

Plate 302

Warner Sc.

GREAT JERBOA.

differed greatly in size, in the shape of the head, in the eyes, and in several other characters; it is easy to prove that Dr. Shaw is mistaken in referring the daman Israel to this species of jerboa.

That on the Cyrenean medal is a true jerboa, and has no analogy with the daman. I have seen the figure of several jerboas in other engravings taken from the Oxford marbles, some of which had their fore paws, and especially their ears, much longer, than those that we have figured; but besides, these jerboas, engraved on the antique marbles, are not represented with sufficient accuracy to enable us to refer them to our species.

Addition to the Article Jerboa by M. Allamand.

M. de Buffon distinguishes four different species of jerboa, but he has seen and figured the tarsier only; what he has said of the other three is taken from preceding authors: among others, he has borrowed the description of the jerboa belonging to the second species of Edwards and Hasselquist.

This animal is actually living at Amsterdam, at Dr. Klockner's, who allowed us to make a drawing from it, and obligingly communicated what was most worthy of remark: in the course of these observations we shall add some particulars to those which M. de Buffon has mentioned.

His description is very exact: in the jerboa of Dr. Klockner we retrace all that he has said, ex-

cept the great, black, transversal band, in the shape of a crescent, below the reins near the tail. It is a female, and perhaps this band may occur only on the male. What leads me to believe this, is, that I placed the skin of another female jerboa in the collection of the Leyden Academy, in which this band was not apparent.

Dr. Klockner received this jerboa from Tunis. The case in which it came was lined with tin, several pieces of which it had raised with its teeth, and had gnawed the wood in different places. It did the same in the cage where it was kept. It was averse to confinement; however, it was not untractable, for it suffered itself to be taken from its nest and put back again with the naked hand, without ever biting; otherwise, it was tamed only to a certain point, as M. de Buffon has remarked; for it did not appear to make any difference between the person who fed it and strangers. When resting, it sits on its knees, and its hind-legs, extended under the belly, reach almost to those before; forming, as it were, the segment of a circle: its tail is then laid alongside the body: in this attitude it receives the ears of wheat, or peas, with which it is fed, conveying them to its mouth with its fore-legs, and that so quickly, that the eye can hardly follow its motions: it eats only the inside of the grain, rejecting the husk.

When moving, it does not advance one foot before the other, but leaps like a grasshopper, supporting itself entirely on the tip of the toes of the hind-feet, pressing the fore-feet against the

breast, so that they hardly appear. It is figured in the plate when preparing to leap, and it is difficult to conceive how it supports itself; sometimes its body even forms with its legs a sharper angle, but in general it holds itself in a more perpendicular attitude; if alarmed, it will leap seven or eight feet. In climbing, it uses its fore-feet; but when it would descend into its burrow, it drags its hind-legs after it without using them, and advances by the assistance of its fore-feet only.

The light seems to offend this animal; as it sleeps during the day, and must be very hungry to eat while the sun shines, but it awakes as soon as the evening commences, and is in continual motion all night; and it is then only that it feeds. At day-break it collects the sand, scattered about the cage, into a heap; puts it under the cotton provided for its bed, which is extremely deranged by its nocturnal motion, and, after having put its nest to rights, creeps into it till the return of night.

During a voyage of several months, from Tunis to Amsterdam, it was fed with oatmeal, or dry biscuit, without any liquid. The first care of Dr. Klockner, upon its arrival, was to give it a piece of bread dipt in water, but it would not touch it, preferring the hard biscuit; however, Dr. Klockner conceiving that it was not able to do without moisture, gave it green peas, and wheat soaked in water; but it was to no purpose, it did not taste it; it was necessary to return to the dry

food, and for a year and a half, till now, it has continued to like it.

Some authors have ranked this animal among the rabbits, which it resembles by the colour and fineness of the hair, and by the length of its ears: others have taken it for a rat, because it is nearly of the same size; but it is neither a rabbit nor a rat; it is distinguished from both by the extreme disproportion between the fore and hind-legs, and the excessive length of its tail. It is distinct from the *alagtaga*, described and figured by M. Gmelin, but which is so nearly allied to our jerboa, that we may consider it (with M. de Buffon) as a variety only of the same species.

It must not be forgotten that the jerboa has a whisker of long stiff hairs round its mouth, among which there is one of an extraordinary length, since it measures three inches. . . . .

. . . .

Prosper Alpinus, speaking of the daman, or lamb of Israel, which M. de Buffon has justly ranked with the jerboas *, says that this animal is larger than our European hare, which was doubted both by Dr. Shaw and M. de Buffon. We are now certain that Alpinus did not exaggerate. All Europe know that Messrs. Banks and Solander, animated by a zeal, which I may almost call heroic, to advance our knowledge of astronomy and natural history, undertook a voyage round the world.

* I shall hereafter give my reasons for differing from this opinion.

On their way, they saw two jerboas that exceeded our largest hares in size, and beat our best dogs in the chase. This was not one of the least of an ample collection of curiosities which they brought home with them, and which would afford subjects sufficient to fill a thousand plates. . . . .

Second Addition to the History of the Jerboas by M. Allamand.

I have observed, in my history of the jerboa, that Prosper Alpinus was right in saying that the daman, which belongs to the genus of jerboa, was larger than our European rabbit. Depending on my English correspondents, I have asserted that Mr. Banks brought one of these animals with him, on his return from his voyage round the world, which exceeded our largest hares in size. I am now enabled to say something more positive about this animal, which is described and figured in captain Cook's First Voyage, and whose skin Mr. Banks has had the goodness to show me. It differs from every other species of jerboa as yet described *, not only in size, which approaches that of a sheep, but also by the number or arrangement of the toes. Parkinson †, who went with Mr. Banks in quality of draughtsman,

* This animal belongs to another genus. It is the kangaroo *didelphis gigantea* of Gmelin, and *macropus major* of Shaw. *W.*

† Journal of a Voyage to the South Sea, p. 145.

acquaints us that it had five toes on the fore-feet armed with hooked nails, and four on the hind-feet: it weighed only thirty-eight pounds, as it was young, and had not arrived at its full size; its head, neck, and shoulders, were small, compared with the other parts of its body: its fore-legs were eight inches long, and its hind-legs twenty-two. It advanced by very considerable leaps, holding itself upright; its fore-legs were applied close to its breast, and appeared to be fit only for digging the ground: the tail was thick at its base, and regularly diminished to its extremity: its body was entirely covered with hair of a deep mouse-gray colour, except the head and ears, which had some resemblance to those of the hare.

By the foregoing description, it appears that this animal is not the jerboa with four toes before and three behind, nor the daman, or lamb of Israel, which has four toes before and five behind *, and consequently ought not to be confounded with it; the *alagtaga* is the nearest allied to it in the number of its toes, having five before and three behind, with a spur that may pass for a thumb, or fourth toe, as M. de Buffon has remarked: but the difference of size, the distance between the places, and diversity of climate where these animals are found, hardly permit us to consider them as one and the same species. That discovered by Mr. Banks inhabits New

* This is true of the pretended daman of Dr. Shaw, which is a jerboa; but false with respect to the true daman, which has only three toes behind.

Holland; the alagtaga is common in Tartary and on the Wolga.

We have an animal living in Holland, which may be the same as that from New Holland, if we may judge from the following description, for which I am indebted to Dr. Klockner, to whom I also owe what I have previously said respecting the little jerboa *.

This animal was brought from the Cape of Good Hope by the Sieur Holst, to whom it belonged: it was caught on a mountain called Snewberg, situated at a very great distance from the Cape towards the interior of the country. The Dutch boors call it *ardmannetje* of *Springendehaas*, or *leaping hare.* It is as large as a hare or a rabbit; its hair is reddish at top, but ash coloured at the root, and intermixed with some longer hairs tipt with black. Its head is very short, but large and flat between the ears, and terminated by a blunt muzzle, with a very little nose: the upper jaw is large, and hides the lower one, which is very short and small. There is no other known quadruped, which has the opening of its mouth so far backward, beneath the head.

The ears are a third shorter than those of the rabbit: they are very thin, and transparent in a strong light; they are blackish above, and of a flesh colour, and more transparent at bottom. It has large eyes, close to the head, of a brown tend-

* The following description relates not to the kanguroo, but to the Cape jerboa, *Dipus cafer*, Linn.

W.

ing to black: the eyelids are provided with lashes, and surmounted with five or six very long hairs. Each jaw has two very strong cutting teeth, those of the upper jaw are the shortest. The upper lip is furnished with a whisker of long hairs.

The fore-feet are small, short, and situated close to the neck: they have five toes on each, also very short, and placed on the same line; they are armed with crooked claws, two thirds larger than the toes themselves, and resting on a fleshy lump situated beneath. The hind-legs are larger than those before; the feet have four toes, of which the two interior are shorter than the third, which is a third larger than the outer one. All of them have claws, which are convex above, and concave beneath.

The body is narrow before, enlarging a little backwards: the tail is as long as the body; two thirds of it is covered with long reddish hairs, and the rest is black.

Like the other kinds of jerboas, they use the hind-feet only in walking, or, to speak more properly, in leaping: these feet are also very strong, and, if they are taken by the tail, they strike with great force. We could not determine the length of their greatest leaps, because they had no opportunity to exert themselves in the small room where they were shut up. In a state of liberty, these animals are said to leap thirty feet.

It makes a sort of grunting noise. It feeds in a sitting posture, extending its great legs horizontally, and bending its back: its fore-feet

serve it like hands to convey the food to its mouth; it uses them also to dig the ground, which it does with such celerity, that in a few minutes it entirely buries itself. Its common food is bread, roots, wheat, &c.

It sleeps in a singular attitude: it sits with its knees extended, placing its head almost between its hind-legs, and, with its two fore-feet, it holds its ears close upon its eyes: thus it seems to protect its head with its hands. It sleeps in the day, and is generally awake in the night.

We perceive by the above description, that this animal ought to be ranked in the class of jerboas, described by M. de Buffon, but that it differs, however, as well in size as by the number of its toes. Although the figure which we have given in plate 301 bears a strong resemblance to that of our jerboa, it nevertheless differs sufficiently to prevent being confounded with it.

If this be the same animal described by captain Cooke (as is very probable), the figure given by the English voyager, and in the French translation is not correct: the head is too long; the fore-legs are never hanging downwards as they are represented, ours always held them to its breast, so that the claws are placed immediately beneath the lower jaw, a situation which agrees with that given by the English author, but which has been badly expressed by the draughtsman and engraver.

In comparing these descriptions of M. Allamand, and summing up the observations we have read, we find, in this genus of jerboa, four very

distinct, known species: 1. The jerboa, or jerbo of Edwards, Hasselquist, and Allamand, which we have described and figured (plate 300); 2. Our tarsier; 3. The great jerboa, or leaping hare of the Cape, which we have figured in plate 301; 4. The great New Holland jerboa, called kanguroo by the natives of the country; it is nearly the size of a sheep, and consequently is a much stronger species than that of our jerboa, or leaping hare of the Cape. We have not thought it necessary to copy the figure of this jerboa, given in Cook's First Voyage, because it appears to us too defective, but we have here reported what this celebrated navigator has said of this singular animal, which, to this moment, has been found only on the continent of New Holland.

"As I was walking this morning, at a little distance from the ship (in the Bay of Endeavour, coast of New Holland), I saw, myself, one of the animals which had been so often described: it was of a light mouse-colour, and in size and shape very much resembled a greyhound; it had a long tail also, which it carried like a greyhound; and I should have taken it for a wild dog, if, instead of running, it had not leapt like a hare or deer. . . . . Mr. Banks also had an imperfect view of this animal, and was of opinion that its species was hitherto unknown. . . . . On one of the following days, as our people went out at day-break in search of game, they saw four animals of the same kind, two of which Mr. Banks's greyhound fairly chased, but they threw him out at a great distance, by leaping over the

70A

Plate 303

KANGAROO.

long thick grass, which prevented his running: this animal was observed not to run upon four legs, but to bound, or hop forward upon two, like the *jerbua*, or *mus jaculus*. . . . . Some days after this, Mr. Gore (my lieutenant), went out with his gun, and had the good fortune to kill one of the animals which had been so much the subject of our speculation. . . . . In form, it is most like the *jerbua*, which it also resembles in its motion, as has been observed already, but it greatly differs in size, the *jerbua* not being larger than a common rat, and this animal, when full grown, being as big as a sheep: this individual was a young one, much under its full growth, weighing only thirty-eight pounds. The head, neck, and shoulders, are very small in proportion to the other parts of the body; the tail is nearly as long as the body, thick near the rump, and tapering towards the end: the fore-legs of this individual were only eight inches long, and the hind-legs two and twenty: its progress is by successive leaps, or hops, of a great length, in an erect posture: the fore-legs are kept bent close to the breast, and seemed to be of use only for digging: the skin is covered with a short fur of a dark mouse or gray colour, excepting the head and ears, which bear a slight resemblance to those of a hare. This animal is called by the natives *kanguroo*. . . . . The same Mr. Gore shot another kanguroo, which, with the skin, entrails, and head, weighed eighty-four pounds. Upon examination, however, we found that this animal

was not at its full growth, the innermost grinders not being yet formed. . . . . These animals seem to be the most common species of quadrupeds in New Holland, and we met with them almost every time we went into the woods *."

By this description, we clearly perceive that the great New Holland jerboa, is not the same animal as the leaping hare of the Cape of Good Hope; and the Forsters, who were induced to compare it with the New Holland kanguroo, agree with us, that they are two different species of the jerboa kind. On the other side, if we compare what Dr. Shaw says of the animal, which he calls daman, with the description of the leaping hare, we easily discover that these two animals constitute but one and the same species, and that this learned traveller is mistaken in the application of the name daman, which belongs to quite a different creature.

From what has been said, we may also infer, that the leaping hare belongs not only to Africa, but likewise to Phenicia, Syria, and other regions of Asia Minor, of which the communication with Africa by Arabia is well ascertained; especially for such animals as live in the burning sands of the desert. Therefore, in separating the true daman from the jerboas, we ought to indicate the characters which distinguish them from each other.

* See Cook's First Voyage, by Hawkesworth, vol. iii p. 561, 569, 577, and 586.

73

Plate 304

Warner Sc

DAMAN ISRAEL.

THE DAMAN ISRAEL*.

WE are indebted to Mr. Bruce for the true description and perfect knowledge of the daman; previously indicated by Prosper Alpinus, and improperly referred by Dr. Shaw to the great jerboa. The following is what this illustrious traveller wrote me on the subject. "The daman Israel is not a jerboa; it is badly described by our Dr. Shaw, who says that the fore-feet are short, compared with those behind, in the same proportion as those of the jerboas: this assertion is not true: see the figure of the

* CHARACTER SPECIFICUS.

HYRAX SYRIACUS.—*Linn. Syst. Nat. Gmel.* i. p. 167.

Hyrax (Syriacus) plantis tridactylis, unguibus omnibus subæqualibus.—*Schreb.* p. 923.

ASHKOKO.—*Bruce's Travels, App.* p. 139, pl. 23.

DAMAN ISRAEL.—*Buff. Hist. Nat. par Sonn.* xxxii. p. 281, pl. 20, fig. 1.

BRISTLY CAVY.—*Penn. Hist. Quadr.* ii. p. 92, p. 78. A.

SYRIAN HYRAX.—*Shaw's Gen. Zool.* ii. p. 219, pl. 164.

HABITAT

in Syria.

W

animal from my own drawing. It is very common in the neighbourhood of Mount Libanus, and still more so in Arabia Petrea: it is found also in the mountains of Arabia Felix, and in all Upper Abyssinia: it is of the shape and size of a rabbit: the fore-legs are rather shorter than those behind, but not more so than in the rabbit: a very distinguishing character is, that it has no tail, and that it has three toes on each foot, somewhat like the monkeys, without any nails, and surrounded with soft flesh, of a round shape. By this character and the want of a tail, it appears to approach the loris. The ears are small and short, lined with hair inside and out; in which it again differs from the rabbit. The body is white beneath; long single hairs, of a shining black colour, proceed from the back, the upper part of the body, and the thighs.

"These animals always inhabit the cavities of rocks, and do not burrow in the earth, since they have no nails."

I have figured this animal after Mr. Bruce's drawing; and it appears, by his account, that Dr. Shaw is mistaken; what still confirms it is, that he would not attend to what Prosper Alpinus has said of the daman, that its flesh is excellent food, and that it is *larger than our European rabbit.* He omits this last fact from the passage of Prosper Alpinus, which he otherwise quotes entire: I must [illegible]erefore correct what I have myself said, and do justice to Prosper Alpinus, [illegible] first pointed out the daman Israel, and gave [illegible]st description of it.

Besides, there seems no doubt that the daman, or lamb of Israel, is the *saphan* of Holy Writ. Mr. Bruce says that he has not only seen it in the different parts of Asia, but even in Abyssinia. M. Sonnerat gave us an account of another daman inhabiting the country about the Cape of Good Hope, which we have figured. This Cape daman differs from the daman Israel in its shape, being rounder, and also in not having so many prominent hairs, nor those so long as in the daman Israel; it has, moreover, a great curved and furrowed nail on the inner toe of the hind-foot, which is not the case in the feet of the daman Israel. These characters appear sufficient for us to make it a distinct species from the Cape daman, and to separate it, as we have here done, from the Syrian daman, to which it nevertheless bears the greatest resemblance in size, in conformation, in the number of toes, and in the want of a tail.

Finally, we ought here to add, that, from the mere inspection of this Cape daman, we recognised it for the same animal that we had previously figured under the name of Cape marmot; observing, at the same time, that I only adopted this name provisionally, till I was better informed of the nature and true name of this animal; and, as the figure that I have given is from a very bad drawing, we ought in preference to consult that which I have here added *. We must also

* The correct figure will be found under the head of Cape Marmot; the plate which appeared in the former editions being suppressed. *W.*

refer what we have said of this pretended marmot to the Cape daman, and likewise what M. Allamand, from Dr. Klockner, has given us about this same animal under the denomination of *klipdas*, or rock-badger; observing that, by the mere conformation of the feet, it ought not to be placed in the badger genus, and that the name has been improperly applied to it. The following is what this learned naturalist has said in his additions to my work.

"Messrs. Pallas and Vosmaër believe that this animal digs holes in the ground like our marmot, or our badger; because, say they, its feet are calculated for this operation; but judging by these same feet, we are led to believe that they are never used for a similar purpose, for they do not appear proper to dig with: they are covered beneath with a very soft skin, and the toes are armed with short and flat nails, which do not extend beyond the skin; this hardly bespeaks an animal that scratches up the earth to form a retreat. In truth, M. Pallas says, that the nails are very short, or rather that there are none, for they would be of no use in digging against the rocks, in the middle of which these animals live. This reason is ingeniously urged; but may we not be authorized also to say, and perhaps with better foundation, that Nature has given them such short nails, only because they are not wanted for digging? at least it is certain, that the one which is at Amsterdam does not employ them for this purpose, never being seen to scratch or dig the earth. . . . . .

"M. Vosmaër says that these animals are slow in their motions; this is doubtless true of the one which he saw, but M. Pallas informs us that it died from plenitude; therefore may we not suppose that the fat with which it was loaded rendered it dull and heavy? At least those which M. Klockner observed were not so: on the contrary, they were very quick in their movements; they leaped up and down with great agility, and always fell upon their feet; they loved to be on the highest places: their hind-legs are the longest, which makes them step like the Guinea pig more than any other animal, but they run like the hog. They never sleep in the day, but, when night arrives, they retire into their nest, where they creep into the middle of the hay, with which they entirely cover their bodies. At the Cape, they are said to nestle in the clefts of the rocks, where they make a bed of moss and the leaves of thorns, which, as well as other leaves that have but little moisture, serve them for food; at least that which is at Amsterdam prefers them to the roots and bread which are given him: he does not willingly eat nuts or almonds. In chewing, he moves the lower jaw like the ruminating animals, although he does not belong to that class. If we may judge of all the species from him, these animals do not arrive at their full size so soon as the Guinea pig: when this was caught, it was of the size of a rat, and probably about five or six weeks old: during the eleven months it was in this country, it did not attain the size of a wild rabbit, al-

though these animals arrive at that of our domestic rabbits.

"The Hottentots are very fond of a kind of medicine which the Dutch call *badger's urine*; it is a dry, blackish substance, of a very bad smell, that is found in the clefts of rocks and in the caverns: they pretend that it originates from the urine of these beasts. These animals, say they, are always accustomed to make water in the same place, and their urine deposits this substance, which in time dries and becomes solid: this is very probable; the one which is at Amsterdam always makes water in the same corner of the cage in which it is confined.

"Its head is small in proportion to its body; its eyes are scarcely half the size of those of the rabbit; its lower jaw is a little shorter than the upper; its ears are round and short; they are edged with very fine hairs, increasing in length as they approach those of the head: its neck is longer than broad, and this applies to the rest of the body: its fore-feet are bare beneath, and divided into lobes: above, they are covered with hairs to the root of the nails. M. Vosmaër says that its feet are naked: this ought to be understood of the lower part only. When it runs, the hind-legs appear scarcely longer than those before: they have but three toes, two of which are always on the ground when they walk, but the third, or inner toe, is shorter, and separated from the two others; this toe is raised whenever the animal moves, and it is armed with a nail of a singular make. M. Vosmaër is content with

saying that it is a curved nail. M. Pallas has said no more, and his figure has not made us better acquainted with it. This nail forms a furrow, the edges of which are very thin; they are near together at the base, and spread as they proceed, till they bend downwards and reunite, terminating in a little point, which extends into the cavity of the furrow near its middle. These nails are so situated, that the hollow of that of the right foot is partly turned towards the left foot, and partly downwards; it never touches the ground, since it is placed at the end of the toe, which the animal always raises when it walks: it does not appear probable that they are used to throw the ground behind, as M. Pallas has supposed; they are too soft for that. M. Klockner has better defined their purpose: the animal uses them to scratch his body and free himself from the insects and dirt which are found upon him; the Creator not being willing that any of the animals that he has formed, should want what is necessary to deliver them from every thing that may prove troublesome.

"On the body of our *klipdas* we see several scattered black hairs, a little longer than the rest; it is a singularity which deserves attention; nevertheless, I will not agree, with M. Pallas, that these hairs may be compared to porcupine's quills; they in nowise resemble them.

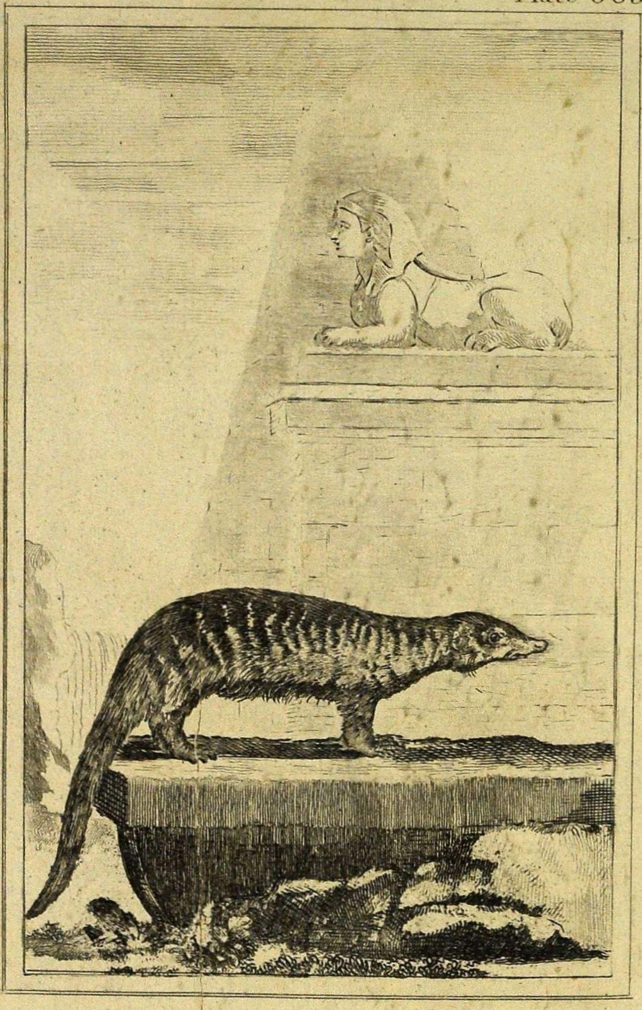
"The length of this animal's body, from the snout to the tail, as observed by Dr. Klockner at Amsterdam, is eleven inches and three quarters: that which I placed in the cabinet of our

academy, is only ten inches; but the one described by M. Pallas was fifteen inches and three lines, and the length of its head was three inches four lines: that of the Amsterdam specimen was but three inches and a half*.

"The females of these animals have but four teats, two on each side, and if they have several young at a time, as is very probable, it is a new confirmation of what M. Buffon has said, *viz.* that the number of teats in each species of animal is not relative to the number of little ones which the female may produce and suckle."

* There is probably a mistake in this measurement, as it was evidently intended to make this the shortest.

W.



MANGOUSTE.

80 B

Plate 306

A. Bell Sculp.t

GREAT MANGOUSTE.

THE ICHNEUMON*.

IN Egypt, the ichneumon is domestic, like the cat in Europe, and preys upon mice and

* CHARACTER SPECIFICUS †.

VIVERRA ICHNEUMON. V. cauda e basi incrassata sensim attenuata, apice floccoso, pollicibus remotiusculis.—*Linn. Syst. Nat. Gmel.* i. p. 84.—*Schreb.* iii. p. 427, pl. 115, B.—*Erxleb. Mamm.* p. 480.

Mustela pilis ex albido et nigro variegatas vestita.—*Briss. Quadr.* p. 181.

Ichneumon, que les Egyptiens nomment Rat de Pharaon.—*Belon, Obs.* p. 95.

ICHNEUMON.—*Gesn. Quadr.* p. 566.—*Aldrov. Dig.* p. 298.

VAR.

VIVERRA MUNGO. V. cauda e basi crassa sensim attenuata non floccosa, pollicibus remotiusculis.—*Linn. Syst. Nat. Gmel.* i. p. 84.—*Schreb.* iii. p. 430, pl. 116, A. B.

VIVERRA ICHNEUMON. β.—*Linn. Syst. Nat.* ed. 12, p. 63.

MUSTELA GLAUCA.—*Ibid.* ed. 5. *Am. Acad.* ii. p. 109.

Viverra ex griseo rubescens.—*Briss. Quadr.* p. 177.

Mustela sive viverra Indis Mangutia.—*Kæmph. Am. Exot.* p. 574. pl. 567.

Viverra Indica ex griseo rufescens.—*Ray's Quadr.* p. 198.

LA MANGOUSTE.—*Buff. Hist. Nat. par Sonn.* xxxii. p. 361, pl. 22.

INDIAN ICHNEUMON.—*Edw.* p. 199.

† For the generic character, see Martin.

rats*. But his appetite for flesh is still more violent, and his instinct more extensive, than that of the cat; for he hunts and eats with equal avidity, birds, quadrupeds, serpents, lizards, insects, and, in general, every animated being. His courage is equal to the vehemence of his appetite. He dreads neither the rage of the dog nor the malice of the cat. He is not afraid even of the bite of serpents, which he pursues and kills; and, when he begins to feel the effects

Ichneumon.—*Penn. Hist. Quadr.* ii. p. 54.—*Shaw's Gen. Zool.* i. p. 379, pl. 92.

HABITAT

in India atque in Ægypto in campis et ad ripas Nili, inundationis tempore in hortis et juxta pagos.

Varietas indica minor glauca.

W.

Ichneumon weesel, with bright flame-coloured eyes, small rounded ears, almost naked, nose long and slender, and the body thicker than that of others of this genus. The tail is very thick at the base, tapering to a point. The legs are short; and the hair is hard and coarse. The colour varies in different animals from different countries; in some it is alternately barred with dull yellowish-brown and white; in others, pale brown and mouse-coloured; so that the animal appears mottled. The throat and belly are of a uniform brown. Beneath the tail is an orifice, not unlike that of a badger. It differs in size, from twenty-four to forty-two inches in length, from the tip of the nose to the end of the tail.—*Penn. Synops. Quadr.* p. 226.

* Mihi ichneumon fuit utilissimus ad mures ex meo cubiculo fugandos . . . . unum alui à quo murium damna plane cessarunt, siquidem quotquot offendebat interimebat, longeque ad hos necandos fugandosque fele est ichneumon utilior.—*Prosp. Alp. Descript. Egypt.* lib. iv. p. 235.

of their poison, he goes in quest of an antidote, and particularly of a root *, which the Indians call by his name, and allege that it is one of the most powerful and certain remedies against the bite of the viper or asp. He eats the eggs of the crocodile, as well as those of hens and other birds. He likewise kills and eats the young crocodiles †,

* Primum antidotum. . . . radix est plantæ Malaïce *Hampaddu-Tanah*, id est *Fel terræ* dicta à sapore amarissimo. . . . Lusitanis ibidem *Raja* seu radix *mungo* appellata à mustela quadam seu viverra Indis *mungustia* . . . . appellata, quæ radicem monstrasse, et ejus usum . . . . prima . . . . prodidisse creditur. . . . Indi igitur. . . . præcipue qui Sumatram et Javam incolunt, sive usum à mustela edocti sint, sive casu quodam invenerint radicem pro explorato habent antidoto.—*Koempfer, Amœnit.* p. 574. In India, there is a root which produces neither trunk, branches, nor leaves. It is called *chiri*, a name derived from that of the animal, which alone knows where to find this root. The animal is as large as a martin, which it also resembles in figure, except that it is more corpulent. It is of a dusky colour, and the hair is hard, crooked, and bristly, like that of the wild boar, but not so long. The tail is fleshy and smooth, like that of the martin. This animal has a remarkable antipathy to serpents, for which he perpetually lies in ambush. . . . The hunters tell us, that, when bit by a serpent, he goes in quest of the root mentioned above, either to cure, or to preserve himself against the effects of the poison. . . . This root is regarded as the best antidote which India produces.—*Voyage de P. Vincent Marie.*

† The ichneumon, or rat of Pharaoh, is a small kind of wild hog. It is a beautiful animal, easily tamed, and its hair is bristly, like that of the porcupine. It is an enemy to all other rats, and has a particular antipathy to the crocodile, whose eggs it devours, and boldly attacks the young, by seizing them by the tail instead of the head.—*Descript. de l'Egypte, par Maillet*, p. 34.

though they are very strong soon after they issue from the egg; and, as fable is always a concomitant of truth, it has been alleged, that, in consequence of this antipathy to the crocodile, the ichneumon enters into his body while asleep, and never leaves him till his bowels are entirely devoured.

Naturalists have imagined that there are different species of ichneumons, because they vary in size and colour. But, if we consider that they are often reared in houses, and must, like other domestic animals, undergo changes, we shall be easily persuaded, that the diversities in colour and size are only simple varieties, and are not sufficient to constitute distinct species; especially as, in two ichneumons which I saw alive, and in several stuffed skins, I examined the intermediate shades both of colour and size, and remarked, that not one of them differed from the others by any evident and constant character. It only appears, that, in Egypt, where the ichneumons are in a manner domestic, they are larger than in India, where they are wild *.

* This ichneumon, says Edwards, came from the East Indies, and was very small. I saw another which came from Egypt, and was more than double the size. . . . Beside the size, the only other difference between these two ichneumons was, that the Egyptian kind had a small tuft at the extremity of the tail, while that of the Indian kind terminated in a point. I believe they are two distinct species; because that of India, which was comparatively so small, had acquired its full growth. — *Edwards*, p. 199. *Nota*, These differences are not sufficient to constitute two species, especially as between the largest and smallest, that is, from thirteen to twenty-two

The nomenclators, who perpetually blunder with regard to species, have differed widely as to the ichneumon. Linnæus first made it a badger, and afterwards a ferret. Hasselquist, following the lessons of his master, likewise made it a badger. Klein and Brisson have placed it among the weesels. Others have made it an otter, and others a rat *. I mention these notions for the sole purpose of showing the inconsistencies and contradictions that arise from what are called *generic names*, which are generally false, arbitrary, and equivocal †.

inches in length, there are intermediate sizes of fifteen and sixteen inches. Seba, who has given a figure and description (vol. i. p. 66, tab. 41,) of one of these small ichneumons, which he had alive, and was brought from Ceylon, remarks, that it was very mischievous, and could not be tamed. This difference of disposition might indicate a difference of species. But it has so perfect a resemblance to those we have already mentioned, that it is unquestionably the same animal. Besides, I saw one of these small ichneumons, which was so tame, that its master (M. le President de Robien) carried it always in his hat, and exhibited to the whole world the mildness and good nature of this animal.

* Cuvier, in his Tableau elementaire de l'Histoire Naturelle des Animaux, has placed the ichneumon among the bears; that is, among the animals that have five, nearly equal, toes, armed with curved and pointed nails; and which have six cutting teeth, and two canine, in each jaw. *W.*

† Hasselquist finishes his long, dry, and uninteresting description of the ichneumon with these words: "Galli in Egypto conversantes, qui omnibus rebus quas non cognoscunt, sua imponunt nomina ficta, appellarunt hoc animal *rat de Pharaon.* Quod sequuenti qui Latine relationes de Egypto dederunt *Alpin, Belon,* murem Pharaonis effinxerunt." If this man had read Belon and Alpinus, whom he quotes, he would

The ichneumon loves the banks of rivers. During inundations, he retires to the high grounds, and often approaches the habitations

have perceived that it was not the French who gave the appellation of *Pharaoh's rat* to the ichneumon, but the Egyptians themselves, and would not, on that account, have taken occasion to revile our nation. But it is not surprising to find petulance and pedantry in the works of a schoolboy. In a word, his descriptions of the ichneumon, of the camelopard, and of some other animals, can never serve any other purpose than to mislead those who take the disagreeable and irksome trouble of reading them: 1. Because they are unaccompanied with figures, which a multitude of ill chosen words can never supply: 2. Because these words are mostly barbarous Latin, or rather no language whatever: 3. Because the method observed in descriptions of this kind, is only a rote, which every man can follow, and requires neither genius nor knowledge: 4. Because, by the minuteness of the description, the remarkable and distinctive characters of the animal described are confounded with the more obscure, unimportant, and equivocal marks: 5. In fine, because the numerous relations and precarious combinations with which we are obliged to load the memory, render the labour of the reader greater than that of the author, and leave both as ignorant as they were before. What proves that, in notes of this nature, neither reading nor knowledge are necessary, is, 1. The false imputation thrown on the French nation with regard to *Phaorah's rat*: 2. The blunder he commits in ascribing to this animal the Arabian name *nems*, which signifies the ferret, and not the ichneumon. To avoid this error, an acquaintance with the Arabic language was unnecessary; it was enough to have read the travels of those who had gone before him in the same country: 3. The omission of essential characters, while he enlarges without measure upon those which are indifferent. He describes, for example, the camelopard as minutely as the ichneumon; but he omits the most important character, namely, whether the horns are permanent, or fall off annually: among a thousand useless words, we find not

of men in quest of prey. In walking, he makes no noise, and varies his gait according to circumstances. Sometimes he carries his head high, contracts his body, and raises himself on his limbs. At other times he has the air of creeping and of lengthening his body like a serpent. He often sits on his hind-legs; and still more frequently darts like an arrow on his prey. His eyes are vivacious and full of fire. His aspect is beautiful, his body very agile, his limbs short, his tail thick and very long, and his hair rude, and often curled. Both male and female *, independent of the natural passages, have a remarkable aperture, a kind of pouch, in which an odoriferous liquor is secreted. The ichneumon is said to open this pouch in order to refresh himself when too warm. His sharp muzzle and

the one which is most necessary: and, from his description, we cannot discover whether the camelopard belongs to the stag or ox kind. But we have dwelt too long on a criticism which every man of sense must make, when works of this nature fall into his hands.

* The inhabitants of Alexandria rear an animal called *ichneumon*, which is a native of Egypt They tame and keep it in their houses, like a cat or dog. The vulgar call it the *rat of Pharaoh*. The peasants bring these animals, when young, to Alexandria, where they are kept in the houses, on account of their hunting rats, serpents, &c. This animal is very cunning in watching its prey. . . . . He feeds indifferently on all living creatures, as beetles, lizards, cameleons, all kinds of serpents, frogs, rats, and mice. He is fond of birds and poultry. When provoked, he erects his hair. . . . . He has a peculiar mark, a large aperture surrounded with hair, near the anus, resembling the female organ, which he opens when too warm. — *Belon, Obs.* p. 95.

narrow mouth prevent him from seizing large objects. But the defects of his weapons and strength, he supplies by agility and courage. He easily worries a cat, though larger and stronger than himself. He often combats with dogs, and, however large they may be, he makes them respect him.

This animal grows quickly, and lives but a short time*. They are numerous in all the southern regions of Asia †, from Egypt to Java; and they appear to exist in Africa, as far as the Cape of Good Hope ‡. But they cannot be

* Feles et ichneumon tot numero pariunt quot canes, vescunturque eisdem, vivunt circiter annos sex. — *Arist. Hist. Anim.* lib. vi. cap. 35.

† Mungos alunt rura calentis Asiæ omnis, usque ad Gangem, etiam in iis regionibus in quibus radix mungo nunquam germinavit. — *Koempf. Amœnit.* p. 574. The ichneumon is a small beautiful animal, shaped nearly like our French weesels . . . but of a colour incomparably finer. . . . The white and black predominate; and there is a kind of red, which constitutes the shade between the two. The hair of the tail is of the same colour, but longer than that of the body. The head is covered with short smooth hair. Its eyes are large, and its ears short and rounded. This ichneumon was two feet and a half long from the nose to the extremity of the tail. . . . It was brought from the kingdom of Calicut to France, in a vessel belonging to our squadron. It lived five months in Paris, and became very familiar. — *Curiosit. de la Nat. et de l'Art,* p. 211.

‡ The ichneumon is of the size of a cat, and shaped like a shrew-mouse. . . . Its whole body is covered with long stiff hair, variegated with black, white, and yellow. This animal, which is common in the fields of the Cape, is a great destroyer of serpents and birds. — *Descript. du Cap de Bonne Esperance, par Kolbe,* tom. iii. ch. 5.

easily reared, or preserved in our temperate climates. Whatever care be taken of them, the wind incommodes, and the frost kills them. To avoid both, and preserve their heat, they roll themselves up, and conceal their head between their thighs. The ichneumon has a small soft voice, a kind of murmur, and its cry never becomes sharp unless when struck or irritated. This animal was held in great veneration among the ancient Egyptians, and still merits protection, on account of the number of noxious animals which it destroys, and particularly the crocodiles, whose eggs it knows how to find, though concealed in the sand. The crocodiles lay such a number of eggs *, that their multiplication would be extremely formidable, if the ichneumon did not destroy them.

We here give the figure of an animal which was transmitted to us from the eastern parts of Africa, under the denomination of *nims*. From its figure, as well as its name, I know it to be a species of ferret; for *nems*, or *nims*, is the name

* The ichneumon is of great service to Egypt, because he destroys the crocodile's eggs, wherever he can meet with them. It was for this reason that the ancient Egyptians performed a kind of religious adoration to him — *Voyage de Paul Lucas*, tom. iii. p. 203. The ancient Egyptians justly reverenced the ichneumon, or rat of Pharaoh. It is said, that, out of four hundred eggs, which the female crocodile lays at a time, to save a few of them from the fury of this mortal enemy, she is obliged to transport them to some small islands, after the retiring of the Nile. — *Descript. de l'Egypt, par Maillet*, tom. ii. p. 129.

of the ferret in the Arabic language. These Arabian ferrets, or *nems*, have a greater resemblance to the vansire than to our European ferrets. M. de Sève gives the following description of the *nems*:

"The *nems*, from his figure and flexibility, is a genuine ferret. When he walks, he lengthens his body, and appears to have very short legs. The individual under consideration was a male, and about thirteen inches and a half long from the muzzle to the anus, and the length of the tail was one foot. The fore part of the body is five inches and a half high, and the hind part six inches and a half. The ears are naked, and of the same figure with those of the common ferret. The eye is vivacious, and the colour of the iris a deep yellow. The muzzle, which is very sharp, appeared not to have any whiskers. The whole body is covered with long hair, which is a mixture of dark brown and a dirty white, and gives it a resemblance to the silvery rabbit. The hair on the belly is of a bright yellow colour, without any mixture. The ground colour on the head, and round the eyes, is clear and yellowish; on the nose, cheeks, and other parts of the face, where the hair is short, a tincture of brown, more or less deep, prevails without mixture, and gradually loses itself above the eyes. The legs are covered with short hair, of a deep yellow colour. On the paws there are four toes, and a small one behind. The claws are small and black. The tail, which is more than double the length of that

9/0

Plate 307

A.Bell Sculp.t

NEMS.

of our ferrets, is very thick at its origin, terminates in a point, and is covered with hair similar to that on the body. This animal, according to the information of the boy who has the charge of it, never drinks *."

* The opinion, that the ichneumon is domesticated by the Egyptians for the purpose of clearing their houses of rats and mice, has hitherto been generally received, and constantly recorded by writers on natural history: Sonnini, however, contradicts the fact; and as, by so doing, he combats a popular assertion, I shall give the passage in his own words: "Avec de grandes dispositions a la familiarité, les mangoustes ne sont point, ou du moins ne sont plus domestiques en Egypte. Non seulement on n'en élève point dans les maisons, mais les habitans actuels n'ont plus même le souvenir que leurs pères en aient élevés. Il est donc vraisemblable que les mangoustes qui Belon *, et Proster Alpin †, assurent y avoir vues en domesticité, n'étoient que quelques individus, nourris plutôt comme des animaux curieux, que comme des animaux utiles; en effet, si les mangoustes font la chasse aux rats et aux souris, elle se jettent aussi sur les volailles; et cet appétit compenseroit de reste le bien qu'elles pourroient faire en purgeant les maisons d'animaux nuisable que les chats détruiroient plus sûrement et avec moins d'inconveniens ‡."

The ichneumon is extremely fond of poultry and of eggs. In those parts of Egypt inhabited by them, they commit great depredations; and this voracious disposition is not to be conquered either by education, good treatment, or abundance of food. D'Obsonville brought up a young ichneumon, in India, which he at first fed with milk, and afterwards with meat mixed with rice. This animal became even tamer than a cat; it obeyed its master's voice, and followed him, though at liberty, into the country. One day he brought him a small water serpent alive, being desirous to know how far his in-

* Observations, livre ii. chap. 22.

† Descript. Egypt. lib. iv.

‡ Buffon par Sonnini, tom. xxxii. p. 578.

stinct would carry him against a being with which he was hitherto totally unacquainted. His first emotion seemed to be astonishment, mixed with anger, for his hair became erect; but, in an instant after, he slipped behind the reptile, and, with a remarkable swiftness and agility, leaped upon its head, seized it, and crushed it between his teeth. This essay, and new aliment, seemed to have awakened in him his innate and destructive voracity, which till then had given way to the gentleness he had acquired from his education. He had been brought up with several curious fowls, which, till then, he had suffered to go and come twenty times unmolested and unregarded; but, a few days after, when he found himself alone, he strangled them all, ate a little, and sucked the blood of two *.

The natural inclination of the ichneumon for eggs, is the reason why it hunts in the sand for those of the crocodile; and thus instinctively becomes one of the most powerful preventives to the multiplication of that destructive animal. This disposition in the ichneumon has given rise to the notion that the little animal slips down the throat of the crocodile and feeds upon his entrails. There is an observation in Sonnini's edition of Buffon, which proves that the ichneumon is not created merely as a scourge to the crocodile (an opinion which, by the way, has often been alleged), but that, in destroying the crocodile's eggs and young, it only follows its natural appetite. In the major part of northern Egypt, *viz.*, that which is comprised between the Mediterranean sea and the town of Siout, ichneumons are very common, while they are less frequently met with in Upper Egypt, where crocodiles, in their turn, abound. They are no where more numerous than in Lower Egypt, where they meet with plenty of nourishment, and Sonnini asserts that crocodiles never appear in that part of Africa.

The ichneumon was so highly esteemed by the ancient Egyptians for its utility, that they regarded it as a sort of deity: according to Herodotus, whenever one of these ani-

* Essais Philosophiques sur les mœurs de divers Animaux etrangers, p. 86.

mals happened to die, it was buried in a consecrated chest. The ichneumon is represented on the left side of the Palestine pavement, fighting with a serpent. Its figure occurs also on the base of the statue of the Nile, and on several of the Egyptian medals.

Buffon has noticed an animal by the name of *nems*, which is nothing more than the mangouste or ichneumon, *nems* being the Egyptian name for the ichneumon, or that by which it is called in the eastern part of Africa.

W.

THE FOSSANE*.

BY some travellers the fossane is called the *genet of Madagascar*, because it resembles the genet in colour, and some other articles. But it is constantly smaller, and has not the odoriferous

* CHARACTER SPECIFICUS.

VIVERRA FOSSA. V. cauda annulata, corpore cinereo nigro maculato. — *Linn. Syst. Nat. Gmel.* i. p. 91. — *Erxleb. Mamm.* p. 498. — *Schreb.* iii. pl. 114.

FOSSANA. — *Aless. Quadr.* iv. pl. 159, fig. 1.

FOSSA. — *Flacourt. Madag.* p. 152.

LA FOSSANE. — *Buff. Hist. Nat. par Sonn.* xxxiii. pl. 1, fig. 1.

FOSSANE WEESEL. — *Penn. Hist. Quadr.* ii. p. 75, pl. 66. A. — *Shaw's Gen. Zool.* i. p. 402, pl. 96.

HABITAT

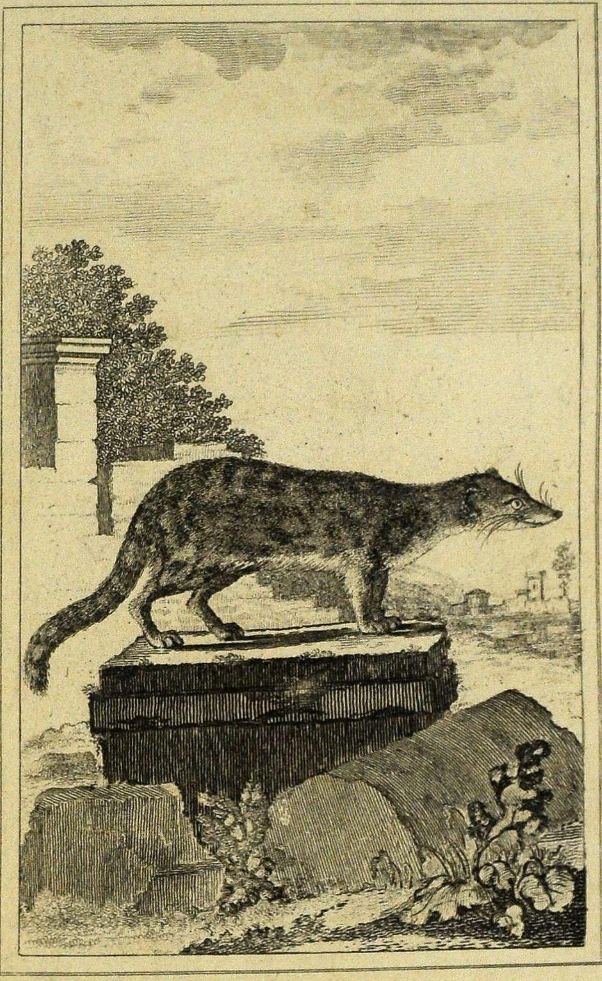
in Madagascar, Guinea, Cochinchina, Philippinis insulis.

W.

Fossane weesel, with a slender body, rounded ears, and black eyes. The body and legs are covered with cinereous hair, mixed with tawny. The sides of the face are black. From the hind part of the head, towards the back and shoulders, four black lines extend. The shoulders, sides, and thighs, are black, and the tail is annulated with black. — *Pennant's Synops. of Quad.* p. 237.

Fossa, or *Fossane*, the name of this animal at Madagascar, which we have adopted.

96



FOSSANE.

pouch, which is an essential character of the genet. As we were uncertain as to this fact, we wrote to M. Poivre, who had sent us a stuffed skin, and who obliged us with the following answers: "Lyon, July 19, 1761.—The fossane which I brought from Madagascar had the manners of our martin. The inhabitants of the island assured me, that the genitals of the male, when in season, had a strong odour of musk. When the skin was stuffed at the royal garden, I examined it attentively, and could perceive no pouch or smell of musk. I reared a similar animal in Cochinchina, and another in the Philippine islands. Both of them were males, and they became a little familiar. They were very young, and I kept them only two or three months. I found no pouch in the part you mentioned; and I only perceived that their excrements had an odour similar to those of our martin. They ate flesh and fruits; but they preferred the latter, and showed a decided taste for bananas, upon which they sprung with avidity. This animal is very wild, and difficult to tame. Though taken when young, his air and character were always ferocious, which seemed to be uncommon in an animal that feeds spontaneously on fruits. The eye of the fossane is a large black globe, which gives it a mischievous aspect."

We rejoice in this opportunity of expressing our gratitude to M. Poivre, who, from his attachment to natural history, and his friendship to those who cultivate that science, has adorned

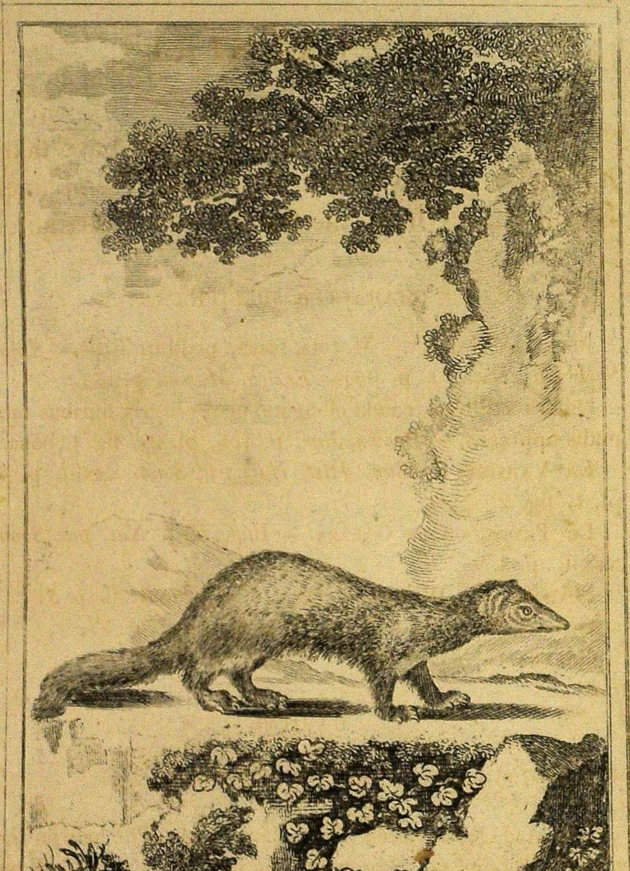
the royal cabinet with a great number of rare and valuable articles.

It appears to us, that the animal called *berbé* in Guinea, is the same with the fossane, and, consequently, that this species exists in Africa as well as in Asia. "The berbé has a sharper muzzle and a smaller body than the cat; and is spotted like the civet *." We have no animal to which these characters apply so well as to the fossane* .

* Voyage en Guinée, par Bosman, p. 256.

A

Plate 309



VANSIRE.

THE VANSIRE*.

THOSE who mention this animal have taken it for a ferret, to which it has a great resemblance. But it differs from the ferret by such characters

* CHARACTER SPECIFICUS.

MUSTELA GALERA. M. tota fusca, pedibus fissis. — *Linn. Syst. Nat. Gmel.* i. p. 95. — *Erxleb. Mamm.* p. 453.

Galera subfusca, cauda elongata, oculis nigris, auribus subnudis appressis. — *Brown, Jam.* p. 485, pl. 29, fig. 1, bona.

LA VANSIRE. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 4, pl. 1, fig. 2.

LE TAYRA, OU LE GALERA. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 8.

MADAGASCAR WEESEL — *Penn. Hist. Quadr.* ii. p. 51.

GUINEA WEESEL. — *Penn. Hist. Quadr.* ii. p. 53.

GALERA. — *Shaw's Gen. Zool.* i. p. 428.

HABITAT

in Guinea et Madagascar; fodit subterranea.

W.

The Madagascar weesel with short ears. The hair on the whole body and tail is brown at the roots, and barred above with black and ferruginous. The length, from nose to tail, is about fourteen inches; and that of the tail, to the tip of the hairs at the end, near ten. — *Penn. Synops. Quadr.* p. 224.

Vansire, derived from *vohangshira*, the name of this animal in Madagascar. The province of Balta, in the kingdom of Congo, furnishes an infinity of fine sables, called there *insire*. — *Hist. Gen. des Voyages*, tom v. p. 87. *Nota*, There are no

as justify us in considering it as a distinct species. The vansire has twelve grinding teeth in the upper jaw, and the ferret only eight; and, though each of these animals has ten grinders in the under jaw, they neither resemble one another in figure nor situation. Besides, the colour of the vansire differs from that of all other ferrets; though these last, like all domestic animals, vary so much from each other in colour, that even the male differs from the female.

To us it appears, that the animal mentioned by Seba *, under the denomination of the *Java weesel*, called by the natives *Koger-angan*, and afterwards, by Brisson †, the *ferret of Java*, may be the same animal with the vansire; at least, it makes a nearer approach to the vansire than any other animal. But Seba's description is not sufficiently complete to enable us to form an explicit judgment. His description we have added in the notes ‡ that the reader may compare it with ours.

sables in Congo; and the similarity of the name leads us to think that the *insire* of Congo may be the *vansire* of Madagascar.

* Mustela Javanica: ab incolis Javæ *Koger-angan* vocatur.—*Seba*, vol. i. p. 77, tab. 48, fig. 4.

† Mustela supra rufa, infra diluta flavæ, cauda apice nigricante. . . . . Viverra Javanica. Le furet de Java.—*Briss. Regn. Anim.* p. 245.

‡ Javanica hæc mustela, hic repræsentata, collo et corpore est brevioribus quam nostras; caput tegentes pili obscure spadicei sunt, rufi, qui dorsum, dilute vero flavi qui ventrem vestiunt, cauda interim in apicem acutum et nigricantem desinente.—*Seba*, vol. i. p. 78.

Mr. Forster communicated to me the following remarks on the vansire.

"I have seen," says he, "an animal of the mangouste kind, in the menagery of the Cape of Good Hope, which came from the island of Madagascar, exactly corresponding with the description of the vansire, given by M. de Buffon. It was delighted to be in a tub full of water, which it left every now and then. The keeper of the menagery assured us that when this animal was detained for some time out of the water, it eagerly plunged in again as soon as it was set at liberty. The figure which M. de Buffon has given is correct enough, but it appears rather too long, because it was done from a stuffed skin: besides, the hair is shorter than that of the vansire in the Cape menagery. This last was nearly the size of a common martin: its tail was as long as its body: its hair was of a blackish brown colour: it had five toes on each foot, deeply divided, and without membranes. It had six cutting teeth both above and below, and eight grinders in each jaw, *viz.* four on each side; the canine teeth were insulated, which make in all thirty-two teeth. The animal walks like the mangouste, resting upon the heel."

THE TAYRA, GALERA, OR GUINEA WEESEL * †.

THIS animal, of which Mr. Brown has given a figure and description, is of the size of a small rabbit, and has a considerable resemblance to the weesel or martin. He digs an habitation in the earth, and has great strength in his fore-feet, which are much shorter than those behind. His muzzle is long, a little sharp, and garnished with whiskers. The under jaw is much shorter than the upper. He has six cutting and two canine teeth in each jaw, without reckoning the grinders. His tongue is rough, like that of the cat. His

* In the preceding edition, this animal stands at p. 265 of the eighth volume, amongst those quadrupeds with which the count was but slightly acquainted. It is now removed to its present situation, because both Erxleben and Gmelin consider it the same as the vansire.

W.

† Guinea weesel, with the upper jaw much longer than the lower; eyes placed midway between the ears and tip of the nose; ears like the human; tongue rough; tail declining downwards, lessening towards the point; feet strong, and formed for digging; shape of the body like that of the rat; size of a small rabbit; of a dusky colour; the hair rough.—*Penn. Synops. Quadr.* p. 225.

head is oblong, as well as the eyes, which last are placed at an equal distance between the ears and the point of the muzzle. His ears are flat, and resemble those of man. His feet are strong, and adapted for digging. The metatarsal bones are long; and he has five toes on all his feet. His tail is long, and tapers to a point. His body is oblong, and has a great resemblance to that of a large rat. He is covered with brown hairs, some of which are longer than others. This animal appears to be a small species of martin or polecat. Linnæus imagined, that the black weesel of Brasil might be the *galera* of Mr. Brown; and, indeed, the two descriptions afford some reason for the conjecture*. Besides, this black weesel of Brasil is likewise found in Guiana, where it is called *tayra*†; and I suspect

* Mustela atra collo subtus macula alba triloba. Habitat, in Brasilia. . . . . . *Holmens. Confer. Brown's Jam.* p. 458, tab. 49, fig. 1. Galera, statura martis, at nigra, pilis rigidioribus, auriculæ rotundæ villosæ. Area ante oculos cinerascens, maculæ sub medio collo non vero sub gula. Mammæ pone umbilicum quatuor.——*Nota,* Mr. Brown says, that he saw only two paps on the lower part of the belly; but the other two might escape his observation. He also says, that the galera is found in Guinea, and the black weesel in Brasil. But this assertion ought not to stumble us; for it happens daily, that Brasilian animals are first transported to Guinea, and afterwards pass for animals belonging to that country; and *vice versa.* I agree, therefore, with Linnæus, in thinking that the galera of Mr. Brown is the same animal with the black weesel of Brasil.

† Mustela maxima atra, moschum redolens. Tayra. Grosse

that the word *galera* is a corruption derived from *tayra,* which is the true name of this animal.

belette. This animal, by rubbing itself against trees, leaves a kind of unctuous humour, which has a strong odour of musk, —*Barrère, Franc. Equin.* p. 155.

THE PEROUASCA*.

RUSSIA and Poland furnish another animal. In the language of the former country it is called *perewiazka*, and in that of the latter *prze-*

* CHARACTER SPECIFICUS.

Mustela Sarmatica. M. pedibus fissis, corpore supra ex luteo fuscoque varia.—*Linn. Syst. Nat. Gmel.* i. p. 97.—*Erxleb. Mamm.* p. 460.—*Schreb.* iii. pl. 132.

Mustela peregusina, pedibus fissis, capite et corpore subtus aterrimis, corpore supra brunneo luteoque vario, ore fascia frontali auriculisque albis.—*Guldenst. Nov. Comm. Petrop.* xiv. p. 441—445, pl. 10.

Mustela præcincta et Perewiaska.—*Rzaczynski Hist. Nat. Pol.* p. 222, 328.

Le Perouasca.—*Buff. Hist. Nat. par Sonn.* xxxiii. p. 16.

Sarmatian Weesel.—*Penn. Hist. Quadr.* ii. p. 38.—*Shaw's Gen. Zool.* i. p. 430.

HABITAT

in Polonia, præsertim Volhynia, et desertis inter Wolgam et Taniam sitis. Noctu præsertim vagatur, interdiu latitans in cavernis ab aliis animalibus effossis, quamvis et ipsa fodiat.

W.

Weesel with broad, short, round ears, edged with long white hairs: mouth surrounded with white: head, feet, and under side of the body, of a full black: head crossed beyond each eye with a white band, passing beneath the ears, along the sides of the neck, and down to the throat: from the hind

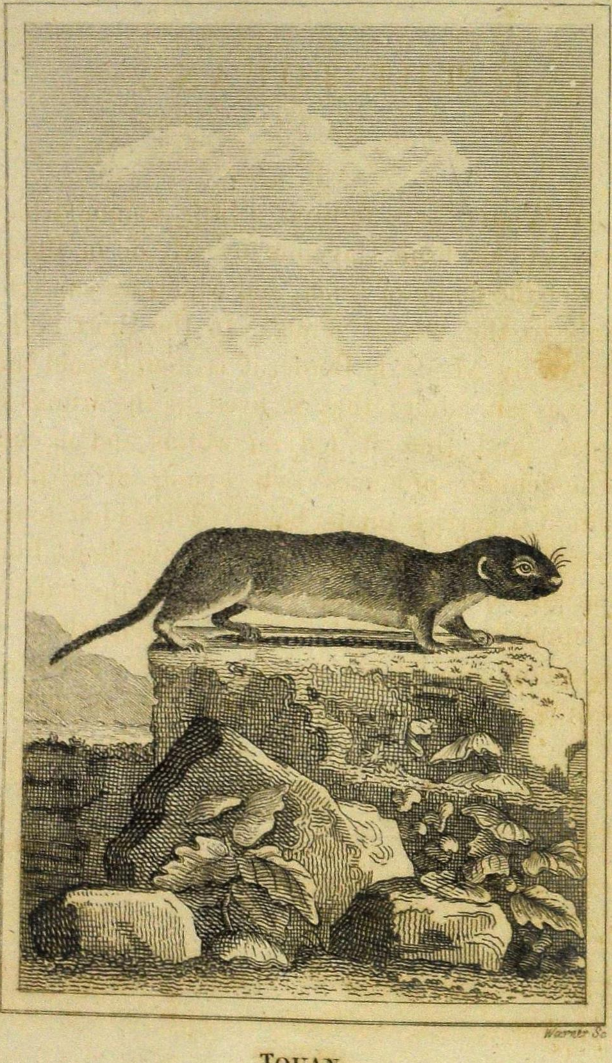
wiaska, or *girdled weesel*. It is smaller than the polecat, and covered with whitish hair, rayed transversely with several bands of yellowish red. It lives in the woods, and burrows in the ground. Its skin is a beautiful fur.

part of the head, another of yellow passes on each side obliquely towards the shoulders; above is a third: the upper part of the body is of a brownish black, striped and spotted irregularly with obscure yellow: tail dusky, full of hairs, intermixed with white ones longer than the rest: the end wholly black. Length, from the tip of the nose, about fourteen inches; of the tail six.— *Penn. Hist. Quadr.* ii. p. 38.

This little quadruped feeds principally on the marmots and rats which inhabit the immense plains of the Russian empire. Pennant says that when it seizes its prey, it first sucks out the blood: it lives usually in holes made by other beasts, but is not without the power of burrowing. It preys by night; sleeps little, and is very fierce and untameable: its eyes are flaming, and its smell fœtid; especially when it erects its tail, which it does in anger: it is very active, and moves by frequent jumps. It is in season in the spring, and, according to the natives, goes two months, and brings four or eight young at a time. *W.*

4 A

Plate 310



Warner Sc

TOUAN.

THE TOUAN*.

WE have here figured a little animal which was sent us from Cayenne by M. de la Borde, under the name of *touan*, and which we can refer only to the weesel genus. In the short notice left us by M. de la Borde, it is merely said that it was an adult; that it lived in the trunks of trees, and that it fed on worms and insects. The female produces two young at a time, which it carries on its back. This adult touan was but five inches and three quarters long, from the end of the snout to the origin of the tail: it is smaller than the European weesel, which is commonly six inches and a half long; but it resembles it in the shape of its head, in the length

* CHARACTER SPECIFICUS.

VIVERRA TOUAN. V. ferruginea, subtus alba, cauda versus apicem nuda. — *Shaw's Gen. Zool.* i. p. 432.

LE TOUAN. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 30, pl. 2.

TOUAN. — *Penn. Hist. Quadr.* ii. p. 34.

HABITAT

in Cayenne. *W.*

of its body, the shortness of its legs, and in the colour of its hair: the head is but an inch long; the tail is two inches and three lines, whilst the tail of our European weesel is only fifteen lines, and is not, like that of the touan, thick at the base, and very small at the tip. The touan has five toes, armed with nails, to each foot: the top of the muzzle, the head, and the body, almost to the tail, is covered with blackish hair; the flanks are of a bright red; the under part of the neck and the belly, are of a fine white; the sides of the head, as well as the upper part of the legs, are of a duller red than the flanks: one third of the tail, from its origin, is covered with hair like that on the legs; the rest is bare: the inside of the legs is white, like the belly: all the hair of this little animal is soft to the touch.

Plate 311

MAUCAUCO.

THE MAKIS*, OR MAUCAUCOS.

AS the name *maki* has been given to several animals, we could only employ it as a generic term, under which we shall comprehend three animals of the same genus, but of distinct species. These three animals have long tails, and feet like those of the monkey; but their muzzle is long, like that of the martin, and they have six cutting teeth in the under jaw, while the monkeys have only four. The first of these animals is the mococo or maucauco, commonly known by the name of the ring-tailed *maki*. The second is the mongous, commonly called

* LEMUR.

CHARACTER GENERICUS.

Dentes primores superiores quatuor: intermediis remotis. Inferiores sex: longiores, porrecti, compressi, paralleli, approximati.

Laniarii solitarii, approximati.

Molares plures sublobati: antici longiores, acutiores.

W.

The word *maki* seems to be derived from *mocock* or *maucauc*, which is the name of those animals in Mosambique, and in the islands adjacent to Madagascar.

the *brown maki*. But this denomination is improper; for some individuals are all brown, and others have their cheeks black, and their feet yellow. The third is the *vari*, by some called the *pied maki*. But this denomination is ill applied; for, besides the pied variety, some individuals are entirely black, and others entirely white. These animals are all natives of the eastern regions of Africa, and particularly of Madagascar, where they are very numerous.

The maucauco* is a beautiful animal. His

* CHARACTER SPECIFICUS.

LEMUR CATTA. L. caudatus, cauda albo nigroque annulata. — *Linn. Syst. Nat. Gmel.* i. p. 43. — *Erxleb. Mamm.* p. 68. — *Schreb.* i. p. 143, pl. 41.

PROSIMIA CINEREA, cauda cincta annulis alternatim albis et nigris. — *Briss. Quadr.* p. 222, No. 4.

Simia-sciurus Madagascariensis sive Maucaco. — *Edw. Av.* pl. 197.

LE MOCOCO. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 36, pl. 2.

RING-TAILED MAUCAUCO. — *Penn. Hist. Quadr.* i. p. 230.

RING-TAILED LEMUR. — *Shaw's Gen. Zool.* i. p. 103, pl. 35.

HABITAT

in Madagascar et proximis insulis, gregarius.

W.

Ring-tailed maucauco with the end of the nose black, erect ears, white face, and black circles round the orbits. The hair on the top and hind part of the head is of a deep ash-colour; the back and sides are of a reddish ash-colour; the outsides of the limbs are paler; and the belly and insides of the limbs are white. All its hair is very soft, close, fine, and erect, like velvet. The tail is twice the length of the body, and marked

aspect is agreeable, his figure elegant, and his hair always neat and glossy. He is remarkable for the largeness of his eyes, the height of his hind-legs, which are much longer than those before, and his large and handsome tail, which is always erect, always in motion, and garnished with thirty alternate rings of black and white, well marked, and separated from each other. His manners are gentle, and, though he has a great resemblance to the monkeys, he possesses none of their malicious dispositions. In a state of liberty, the maucaucos live in society, and they are found in Madagascar in troops of thirty or forty*. In a domestic state, the prodigious rapidity of their movements renders them incommodious: it is for this reason alone that they are generally chained; for, though extremely active and vivacious, they are neither mischievous nor ferocious. They tame to such a degree as to go out and return, without any danger of running off. Their gait is oblique, like that of all animals which have hands instead of feet. The maucauco leaps more gracefully than he walks. He is a silent animal, uttering only a short acute

with numbers of regular rings of black and white; and, when sitting, it is twisted round the body, and brought over its head. The nails are flat, particularly those of the thumbs of the hind-feet. The inside of the hands and feet is black. It is of the size of a cat. — *Pennant's Synops. of Quad.* p. 137.

* The varis, whose tails are barred with black and white, go in troops of thirty, forty, or fifty: they resemble the varicossis. — *Voyage de Flacourt*, p. 154.

cry when surprised or irritated. He sleeps in a sitting posture, with his muzzle resting on his breast. His body is not thicker than that of a cat, but it is longer; and the height of his legs gives him the appearance of being larger than he really is. His hair, though very soft to the touch, stands always erect. In the male maucauco, the organs of generation are small and concealed; but those of the mongous, or woolly maucauco, are disproportionally large, and very apparent.

The maucaucos, or makis maucaucos, are handsomer and better made than the mongous: they are also tamer, and appear more sensible. Like monkeys, they are very lascivious. They are very gentle, and even caressing, and some observers have remarked that they have naturally a singular habit of putting themselves into an attitude of admiration or pleasure when in the sunshine. They sit down, say they, and stretch out their arms, while they observe this luminary; several times a day they repeat this sort of profession, which occupies them for whole hours, for they turn themselves towards the sun, according as it rises or declines.

" I kept one," says M. Sonnini de Mannoncourt, " for a considerable time at Cayenne, to which place it had been brought by a vessel from the Moluccas: what determined me to purchase it, was its steadiness in keeping its situation before the sun. It was on the poop of the vessel, and, for an hour at a time, I observed it con-

MONGOUS.

stantly extending its arms towards the sun, and they assured me that it did the same in the East Indies."

"It appears to me," observes M. Sonnini de Mannoncourt, "that this habit originates from these animals being very chilly. The mongous that I kept for some years in Bourgogne, always seated itself very near the fire, and stretched out its arms towards it, to heat them: thus I conceive that the habit of displaying their arms, either before the fire or the sun, is common to these two species of makis."

The mongous is smaller than the maucauco*;

* CHARACTER SPECIFICUS.

Lemur Mongoz. L. caudatus griseus, cauda unicolore. — *Linn. Syst. Nat. Gmel.* i. p. 42. — *Schreb.* i. pl. 39. B. — *Erxleb. Mamm.* p. 66.

Prosimia Fusca, naso, gutture, et pedibus albis. — *Briss. Regn. An.* p. 221.

Simia-sciurus lanuginosus fuscus ex Johannæ insula. — *Petiver Gazoph.* tab. 17, fig. 5. Mediocris.

Le Mongous. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 40, pl. 3.

Mongooz. — *Edw.* v. p. 12, pl. 216.

Woolly Maucauco. — *Penn. Hist. Quadr.*

Woolly Lemur. — *Shaw's Gen. Zool.* i. p. 90, pl. 33.

HABITAT

in Madagascar insulisque adjacentibus usque ad Celebes.

Variat pedibus albis vel fulvis; facieque tota fusca.

W.

The woolly maucauco, with orange-coloured irides, short rounded ears, end of the nose black, eyes lodged in a circle of black, and the space between them of the same colour. The

his hair is likewise silky, pretty short, and somewhat curled. His nose is larger than that of the maucauco, and resembles that of the vari. I had a mongous in my possession for several years, which was altogether brown. It had yellow eyes, a black nose, and short ears. It amused itself with eating its own tail, and actually destroyed the last four or five vertebræ. This animal was extremely dirty, and so troublesome that we were obliged to chain him. Whenever he could make his escape, he went into the neighbouring shops in quest of fruits, sugar, and sweetmeats, and opened the boxes which contained them. It was difficult to seize him, and he bit cruelly even those with whom he was best acquainted. He uttered a low grunting noise, almost perpetually; and, when tired of being alone, he croaked like a frog, and so loud as to be heard at a great distance. This mongous was a male, and his testicles were extremely large in proportion to the size of his body. He was fond of the she-cats, and even satisfied his desires, without any intimate union: his embraces were, of course, ineffectual. He dreaded

rest of the nose and lower sides of the cheeks is white. When in full health, the whole upper part of the body is covered with long, soft, and thick fur, a little curled or waved, and of a deep brownish ash colour. The tail is very long, and covered with the same sort of hair, and of the same colour. The breast and belly are white, and the hands and feet naked and dusky. The nails are flat, except that of the inner toe of the hind-feet. It is of the size of a cat. The paws are sometimes white or yellow, and the face wholly brown. — *Pennant's Synops. of Quad.* p. 136.

2 A

Warner Sc

GREAT MONGOUS.

cold and moisture; he never departed from the fire, and stood on end to warm himself. He was fed with bread and fruits. His tongue was rough, like that of a cat; and, when permitted, he licked a person's hand till it was inflamed, and often finished this operation with a severe bite. The cold of the winter 1750 killed him, though he never quitted his station near the fire. His movements were extremely brisk, and sometimes petulant. He often slept during the day; but his slumbers were so light, that the smallest noise awaked him.

In this species there are several varieties, both in colour and size: the mongous, whose history has just now been given, was totally brown, and about the size of an ordinary cat. I saw one, which, though an adult, was not larger than the fat squirrel. If this small mongous had not perfectly resembled the large kind, except in size, it would unquestionably have been a distinct species. But, as we have no evidence that these two animals do not intermix, we must still regard them as the same species, till we acquire some new light as to their history and economy.

The maki-mongous which we have described was the size of a cat: this was one of the smallest; for that which I have figured (pl. 313) was at least one third larger, and this difference proceeded neither from age nor sex, for they were both males, and I kept the first for several years. Perhaps, then, it was merely an individual variety, for in other respects it so strongly resembled the other, that there was no doubt of its being the same species. The persons who

brought it to Paris called it *maki cochon*. It did not differ from the first, except in the hair of the tail, which was much less tufted, and more woolly, and in the shape of that extremity which tapered to the tip, instead of which the tail of the other mongous appears of an equal size throughout. There is also some difference in the colour of the hair, this being of a much clearer brown than the other; nevertheless, these slight differences do not appear to us sufficient to constitute two distinct species of these animals.

The vari*† is larger, stronger, and more fe-

* CHARACTER SPECIFICUS.

Lemur Macaco. L. caudatus niger, collari barbato.— *Linn. Syst. Nat. Gmel.* i. p. 43.—*Schreb.* i. p. 142. pl. 40, A.

Lemur (Macaco) caudatus niger, collari barbato, cauda pilosa.—*Erxleb. Mamm.* p. 67.

Lemur cauda floccosa, corpore fusco.—*Gron. Zooph.* i. p. 5, No. 22.

Prosimia Fusca.—*Briss. Quadr.* p. 220.

Le Vari.—*Buff. Hist. Nat. par Sonn.* xxxiii. p. 43, pl. 3.

Black Maucauco.—*Edw. Glean.* i. p. 13, pl. 217.

Ruffed Maucauco.—*Penn. Hist. Quadr.* i. p. 231.

Ruffed Lemur.—*Shaw's Gen. Zool.* i. p. 98.

HABITAT

in Madagascar. S. Johannæ et vicinis. *W.*

The ruffed maucauco, with orange-coloured irides, long hair round the sides of the head, standing out like a ruff, and a long tail. The colour of the whole animal is black, but not always, being sometimes white spotted with black; but the feet are black. It is rather larger than the ring-tailed species.—*Penn. Synops. Quadr.* p. 133.

† Flacourt, who calls the maucauco *vari*, gives the name of *varicossy* to this animal; which epithet, probably, denotes the greater size and ferocity of the animal, which likewise differs from the maucauco in several other articles.

114

VARI.

rocious than the maucauco. In a state of liberty, he is even dangerous. We are told by travellers, "That these animals are as furious as tigers; that they make such a noise in the woods, that, when only two of them are together, one would believe there were a hundred; and that it is difficult to tame them *." The voice of the vari has some resemblance to the roaring of a lion, and is tremendous to those who hear it for the first time. This astonishing strength of voice, in a middle-sized animal, depends on the singular structure of its windpipe, the two branches of which widen, and form a large cavity, before they enter the lungs. Hence he differs from the maucauco both in structure and dispositions. His hair, in general, is longer; and he has a kind of a ruff, or cravat, of still longer hair, which surrounds his neck, and forms a very distinct character, by which he is easily known. In colour, he varies from white to black, or pied; and his hair, though long and very soft, stands almost perpendicular to the skin. His muzzle is larger, and proportionally longer than that of the maucauco. His ears are much shorter, and fringed with long hairs. His eyes are of so deep an orange colour, that they appear to be red †.

* Voyage de Flacourt, p. 153. — When this animal is taken young, he apparently loses his ferocity, and seems to be as gentle as the maucauco. "It is an animal of a social, mild, and peaceable nature, and has neither the cunning nor the malice of the monkey." — *Edw. Glean.* p. 13.

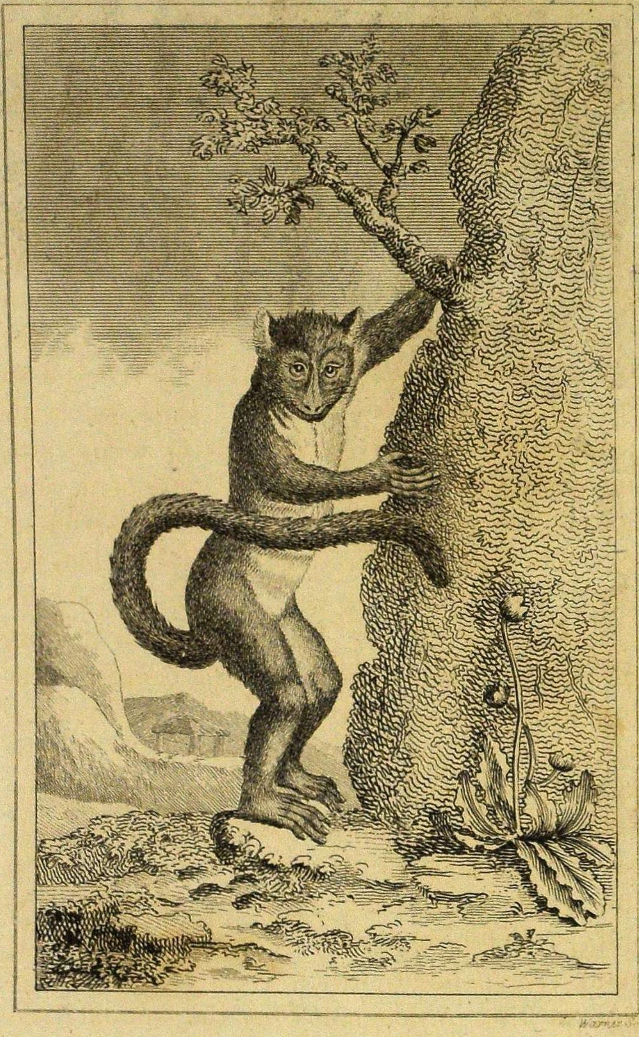
† Sonnini mentions a variety of vari in the cabinet of natural history at Paris, which is quite black, except the ruff and

The maucauco, the mongous, and the vari, belong to the same country, and seem to be confined to Madagascar *, Mosambique, and the lands adjacent to these islands. They appear to be in the Old Continent what the opossums are in the New, which last, like the former, have four hands. With regard to figure, the makis seem to constitute the shade between the long-tailed monkeys and the digitated quadrupeds. Like the monkeys, they have four hands and a long tail; and, at the same time, their muzzle is long, like that of the fox or polecat. In manners, however, they have a greater resemblance to the monkeys; for, though they sometimes eat flesh, and likewise lie in wait for birds, they are more frugiverous than carnivorous, and prefer, even in a domestic state, fruits, roots, and bread, to flesh, either raw or roasted.

legs, which are white: there is also a transversal band of the same colour on the middle of the body. *W.*

* In the province of Melagasse in Madagascar, the different species of monkeys are extremely numerous. Some of them are brown, with woolly hair, and a long bushy tail, which they raise above their backs, and form a shade with it to protect themselves from the sun and rain. In this manner they sleep, like the squirrels, upon the branches of trees. Besides, they have round ears, and a muzzle like the martin. This species is not so troublesome and malicious as the other kinds. The antavarres have the same kind of hair with the former, and a white ruff round the neck. Some of them are entirely white, with a long muzzle. They are as large as the former, and grunt like hogs. — *Relat. de Madagascar, par F. Cauche*, p. 127: *Nota,* This passage plainly points out the mongous and vari; and it is upon this authority that I have said, that some varis are black, others pied, and others entirely white.

A



Warner Sc.

LITTLE GREY MACAUCO.

THE LITTLE GRAY MAKIS*.

THIS pretty little animal was brought from Madagascar by M. Sonnerat. Its whole body, except the face, feet, and hands, is covered with a grayish woolly fur, thick and soft to the touch. It's tail is very long, and covered with fur similar to that of the body. It is much allied to the maucauco, both in its form and attitudes, as well as in the nimbleness of its motions; but the maucauco, stands higher on its legs. In both, the fore-legs are shorter than the hind.

The colour of this little makis is, as it were, marbled with pale tawny: the fur being mouse-gray at the roots, and pale tawny at the extremities. The fur on the upper part of the body is six lines long, and four on the under part. The whole under part is white from the lower jaw: but the white is a little mingled with yellowish and grayish on the belly and beneath the limbs. The head is very large in front, and the snout very pointed, which gives a great sharpness to the physiognomy of the animal: the

* Dr. Shaw describes this animal as a variety only of the lemur laniger. — *Linn. Syst. Nat. Gmel.*

forehead is straight; the eyes round and full; the ears are nine inches high, and seven broad; they differ from those of other maucaucós, which are large, and, as it were, flattened at the tips. Those of this little makis are large at the base and rounded at the ends: they are covered and edged with ash coloured hairs. The circumference of the eyes, the ears, and the sides of the cheeks, are of a clear ash colour, as well as the fore parts of the arms and legs. The length of this animal, measured in a straight line, is ten inches and three lines; but if measured according to the curvature of the body, one foot and two lines: the length of the head, from the tip of the nose to the hind part, is two inches and five lines. The interior toe is furnished with a sharp, crooked claw; the rest with nails: the toes are of unequal length. The tail is fifteen inches long, of an uniform thickness throughout its whole length, and covered with woolly hair of the same colour as the body: the hairs on the tip, where the tawny prevails, measure seven lines.

9

Plate 316

Warner Sc.

FLOCKY MAKIS.

ANOTHER KIND OF MAKIS.

I conceive that, to the little gray makis, we ought to add another species, which M. Sonnerat also brought from Madagascar, and which does not differ from the former, except in the tint and distribution of its colours.

It has, like the other makis, a soft and woolly hair, but more tufted, and united in flakes, which occasions its body to appear large and thick. The head is large and short; and the snout is not so long as in the vari, the mongoz, and the maucauco. The eyes are very large, and the eyelids edged with blackish. The forehead is large, and the ears short, and hid in the fur. The fore-legs are short in comparison with the hinder; which, when the animal walks, occasions the hind quarters to rise, as in the maucauco. The tail measures ten inches and six lines; it is covered with tufted hair, and is of an uniform thickness.

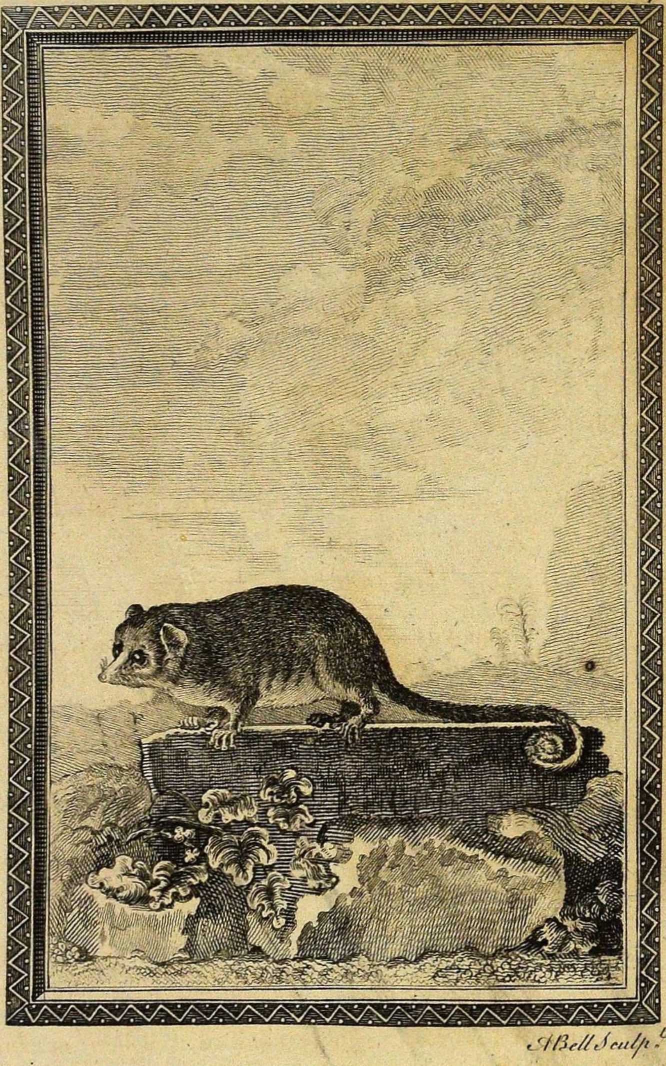
The length of this animal, from the nose to the origin of the tail, is eleven inches six lines. The length of its head from the tip of the nose to the occiput, two inches three lines. A great black patch, ending in a point upwards, covers the nose, the nostrils, and part of the upper jaw.

The feet are covered with tawny hair, tinged of an ash colour. The toes and nails are black; the great toe of the hind feet is large and thick, with a thin flat nail: this first toe is united to the second by a blackish membrane.

The general colour of this animal is brown and ash-tawny, of different shades, the hair being brown with tawny tips. The neck, beneath the throat, the breast, the belly, and inside of the legs, are of a dirty white, tinged with tawny. The brown predominates on the head, the back, and upper parts of the limbs, and the ash-tawny prevails on the sides of the body and limbs; the tawny tinge is deepest round the ears, as well as on the front of the arms and legs to the heel. All that part of the back nearest the tail is tinged with tawny, which becomes orange throughout the whole length of the tail*.

* The potto, described and figured in Bosman's account of Guinea, seems, in Sonnini's opinion, very strongly to resemble this species. *W.*

21



A Bell Sculp.^t

MADAGASCAR RAT.

THE MADAGASCAR RAT, OR DWARF MAUCAUCO*.

IN the figure is represented a small animal from Madagascar, which was drawn alive, when in the possession of the countess of Marsan. It appeared to make a nearer approach to the species of the palm squirrel than to that of the rat; for I was assured that it frequented the palm-trees. I have not been able to procure farther

* CHARACTER SPECIFICUS.

LEMUR MURINUS. L. caudatus cinereus, cauda ferruginea. —*Linn. Syst. Nat. Gmel.* i. p. 44. —*Miller, Cimelia, Physica*, p. 25, pl. 13.

LEMUR PUSILLUS. L. caudatus griseus. — *Le Maki Nain Audeb. Hist. Nat. des Singes et des Makis.*

LE MAKI NAIN.—*Buff. Hist. Nat. par Sonn.* xxxiii. p. 51, pl. 5.

RAT DE MADAGASCAR. —*Buff. Suppl.* iii. p. 149, pl. 20.

MURINE MAUCAUCO —*Penn. Hist. Quadr.* i. p. 232.

MURINE LEMUR. —*Shaw's Gen. Zool.* i. p. 106, pl. 37.

HABITAT

in Madagascar.

Sonnini has very properly followed Audebert, in calling this animal by the name of dwarf maucauco, as it evidently belongs to the lemur tribe. The name of rat, although improper, I have still retained, merely, however, as a guide to the original work of Buffon. *W.*

information concerning this animal. It may be remarked, however, that, as its claws did not project, it seemed to constitute a species very different from that of the rat, and to approach nearer to the palm squirrel. To this animal may be referred the rat on the south-west coast of Madagascar mentioned by the Dutch voyagers; for they tell us, that these rats live in the palm-trees, and eat the dates; that their body is long, their muzzle sharp, their legs short, and their tail long and spotted*. These characters correspond so well with those represented in the figure of our Madagascar rat, as to induce us to believe that the animal formerly mentioned belongs to this species.

It lived several years with the countess of Marsan. Its movements were extremely brisk, and its cry was nearly similar to that of the squirrel, though much weaker. Like the squirrels, it carried its food to its mouth with the fore paws, erected its tail, and leaped about. It bit desperately, and could not be tamed. It was fed with almonds and fruits. It never came out of its cage, except in the night; and it endured the winters very well in an apartment where the cold was moderated by a small fire †.

* Recueil des Voyages qui ont servi à l'Etablissement de la Compagnie des Indes Orientales, tom. i. p. 413.

† The length (according to Sonnini) of the specimen preserved in the Paris collection of natural history, is five inches and a half from the end of the nose to the origin of the tail. Its muzzle is shorter than that of the other maucaucos; its skin is gray, and its eyes large, and encircled with a tint of brown. *W.*

23

Plate 318

LORIS.

THE LORIS, OR TAILLESS MAUCAUCO*.

THE loris is a small animal of Ceylon, which is very remarkable for the elegance of its figure and the singularity of its conformation. Of all animals, its body is, perhaps, the longest in pro-

* CHARACTER SPECIFICUS.

LEMUR LORIS. L. ecaudatus subferrugineo-cinereus, subtus gracilimis, auriculis magnis. — *Shaw's Gen. Zool.* i. p. 93.

Animal cynocephalum ceilonicum. — *Seb. Mus.* i. p. 55. pl. 35.

LE LORIS. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 58. pl. 5.

LORIS MAUCAUCO. — *Penn. Hist. Quadr.* i. p. 228.

LORIS. — *Shaw's Gen. Zool.* i. p. 93, pl. 31.

HABITAT

in Zeylona. *W.*

Maucauco with a small head, sharp pointed nose, orbits surrounded with a black circle, and a white space between them. From the top of the head, along the middle of the back, to the rump, there is a dark ferruginous line, which on the forehead is bifurcated. The ears are small. The body is covered with short, soft and silky, ash-coloured and reddish fur. The toes are naked, and the nails flat; those of the inner toe on each hind-foot are long, crooked, and sharp. The length of the animal, from the nose to the rump, is sixteen inches. — *Penn. Synops. Quadr.* p. 135.

Loris, or *locris*, the name given to this animal by the Dutch

portion to its bulk. It has nine lumbar vertebræ, whilst all other quadrupeds have only five, six, or seven. The length of its body is an effect of this structure; and it appears still longer, because it wants a tail. Were it not for this defect of tail, and the uncommon number of vertebræ, it might be comprehended under the list of makis; for it resembles them in the hands and feet, in the quality of the hair, in the number of teeth, and in the pointed muzzle. But, independent of the singularity above taken notice of, which removes this animal from the makis, he has other peculiar qualities. His head is entirely round, and his muzzle is almost perpendicular to this sphere. His eyes are exceedingly large, and very near each other. His ears are large, rounded, and garnished in the inside with three auricles, in the form of a small shell. But what is still more remarkable, and perhaps peculiar to this animal, the female discharges her urine by the clitoris, which is perforated like the penis of the male; and these two organs have a perfect resemblance to each other, both in figure and size.

Linnæus has given a short, but excellent description of this animal *. It is likewise very

* Statura sciuri, subferruginea, linea dorsali subfusca; gula albidiore, linea longitudinalis oculis interjecta alba. Facies, tecta, auriculæ urcœlatæ, intus bifoliatæ; pedum palmæ plantæque nudæ, ungues rotundati; indicum plantarum vero subulati. Cauda fere nulla, mammæ 2 in pectore, 2 in abdomine versus pectus. Animal tardigradum, auditu excellens. — *Linn. Syst. Nat.* p. 44.

well represented by Seba; and it appears to be the same animal of which Thevenot speaks in the following terms: "I saw, in the Mogul country, apes which had been brought from Ceylon. They were much esteemed, because they exceeded not the size of a man's hand, and were of an uncommon species. Their front was flat, their eyes large and round, and of a bright yellow colour, like those of certain cats. Their muzzle is very sharp, and the inside of their ears is yellow. They have no tail. . . . When I examined them, they stood on their hind-feet, often embraced each other, and looked steadfastly on the people, without being afraid * †."

* Relation de Thevenot, tom. iii. p. 217.

† It should be observed, that the loris is perfectly distinct from the following species, though it has frequently been confounded with it. This is an active little animal, of a different shape and disposition from the lemur tardigradus, which, as its name implies, is the very reverse of activity.

W.

THE BENGAL LORIS*.

UNDER the name of Bengal loris, we have figured an animal which appears to be a species bordering on the preceding. Our figure is copied from that which M. Vosmaër has engraved under the name of *five-toed sloth of Bengal*. He has given the following description of it:

" It will be sufficient to judge of the size of this animal, if I say, that its length, from the top of the head to the rump, is thirteen inches. Our figure, which is very correct, shows the complete

* CHARACTER SPECIFICUS.

Lemur Tardigradus. L. ecaudatus subferrugineo-cinereus, linea dorsali fusca, auriculis brevissimis. — *Shaw's Gen. Zool.* i. p. 81.

Lemur Tardigradus. L. ecaudatus subferrugineus. — *Linn. Syst. Nat. Gmel.* i. p. 41. — *Erxleb. Mamm.* p. 68.

Lemur Tardigradus. Slow-paced Lemur. — *Specul. Linn.* i. pl. 5.

Le Loris de Bengal. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 62, pl. 6.

Tailless Maucauco. — *Penn. Hist. Quadr.* i. p. 227, pl. 48.

Slow Lemur. — *Shaw's Gen. Zool.* i. p. 81, pl. 29.

HABITAT

in Bengal. *W.*

12

Plate 319

Warner Sc

BENGAL LORIS.

conformation of the body. Its head is almost round, except the muzzle, which is rather pointed. The ears are very thin, oval, and straight, but almost entirely hid under the woolly hair, which also prevails withinside. The eyes are situated on the forehead, directly above the nose, and very near together. They are perfectly round, of a dark brown colour, and very large in proportion to the body. When the animal is roused in the day-time, the pupil is at first very small, but it increases by degrees to a considerable size. Upon bringing a candle towards it, when it awakes, in the evening, we observe this pupil extending in the same degree, and occupying nearly the whole circle of the eye. The nose is small, flat in front, and open on the sides.

" There are four straight and flat cutting teeth in the front of the lower jaw, with a larger one on each side of them: then follow two great canine teeth, after which, on each side, come two round and pointed teeth, thus making twelve teeth in all. Besides, as well as I was able to see into the muzzle, there are two or three grinders on each side. The front of the upper jaw has but two little sharp teeth in the centre; a little farther, two small canine teeth, one on each side; again, two smaller teeth, and two or three grinders, making in all eight teeth, without counting the grinders. The tongue is tolerably thick and long, rounded in front, and rough.

" The hair is long, fine, and woolly, but harsh to the touch. It is in general of a gray, or clear yellowish ash colour, a little redder on the flanks

and legs. The colour is deeper also round the eyes and the ears, and a brown stripe runs all along the back, from the head. This animal has the appearance of a tail, about two or three lines long. There are five toes on the fore-feet. The thumb is larger than the other toes, of which the middle one is the longest: the nails are like those of a man. The toes of the hind-feet are of a similar conformation, except that in these the nail of the first toe is very long, and sharp pointed. All the toes appear to me to have three joints: they are somewhat hairy above but bare beneath, and provided with a strong brown skin. The fore-feet are about six inches long, and the hind-feet about eight inches. I conceive to be a male."

From the inspection of the figure, as well as from the description of M. Vosmaër, it seems that this animal, which he names improperly the Bengal sloth, approaches nearer to the species of loris than to that of any other animal; and that these two creatures equally inhabiting the Old Continent, we ought not to call them by the name of sloths, nor to confound them with the *unau* and *aï*, which bear the name of sloth, and which are found only in America. However, M. Vosmaër, who is not of the same opinion, has started several objections to this particular, to which I shall answer *. . . . .

* What I have here omitted is a mere matter of dispute between the count de Buffon and M. Vosmaër, which would be very uninteresting to the reader.

W.

It now remains to record the observations which M. Vosmaër has made on the nature and manners of the Bengal loris.

"I received this singular animal," says Vosmaër, "on the 25th of June, 1768. Curiosity to observe him closely, induced me, notwithstanding his disagreeable smell, to take him into my room. It slept all day till the evening, and, it being in the summer season, it did not awake till half past eight. It constantly slept, sitting on its rump, close to the iron wires of the oblong, square-shaped cage in which it was confined, with its head bent forwards between the two fore-feet, which were folded over its belly. In this attitude it always held itself very strongly fixed to the wires by the two hind-feet, and often by one of its fore paws also; which authorizes me to suppose that the animal generally sleeps on trees, and attaches itself to the branches. Its motion, when awakened, was extremely slow, and always the same from beginning to end; drawing itself on from bar to bar; taking hold of the upper part of one bar by its fore-feet, and not quitting it till it had slowly and very strongly grasped another bar with one of its hands. When it crept on some hay on the ground, it moved with the same slowness, dragging one foot after the other, as if paralytic: and in this motion it raised its body but very little, merely drawing itself forward in such a manner, that frequently the belly was scarce a finger's breadth from the ground. Vain was the attempt to drive it on by pushing

a stick through the bars; it did not mkae it quit its hold; if pushed too rudely, it bit the stick, and this was all the defence it made.

Towards the evening, it awaked by degrees, like one whose sleep is interrupted after having been a long while without rest. Its first care was to eat; for in the day-time the moments were too precious to be spared from repose. After having finished this task, with tolerable quickness for a sloth, it evacuated the remains of its former meal: its urine had a strong, disagreeable smell, and its fæces resembled the small pellets of sheep's dung. Its usual food, according to the captain of the ship which brought it over, was rice boiled very thick: he had never seen it drink.

"Being persuaded that this animal would not refuse a different kind of nourishment, I gave it a sprig of lime-tree with leaves upon it, but it rejected it: fruits, such as pears and cherries, were more to its taste; it willingly ate dry bread and biscuit, but would not touch them if dipped in water. Whenever water was offered, it contented itself with smelling it, without drinking. It was passionately fond of eggs. It often made use of its hands in eating, like a squirrel. I concluded, from its eating eggs, that it would also eat birds; and accordingly, having given it a live sparrow, it immediately killed it with a bite, and very greedily ate the whole. Curious to know whether insects would also suit its taste, I gave it a live cockchaffer, which it took in its paw, and devoured completely. I afterwards

gave it a chaffinch, which it ate with a good appetite, after which it slept the remainder of the day.

"I have often seen him still awake at two hours after midnight; but from half past six in the morning he was always in a profound sleep, so that his cage might be cleaned without disturbing his repose. During the day, being awaked by force in order to provoke him, he was angry, and bit the stick, but with a very slow motion, and with a reiterated cry of *ai, ai, ai*, lengthening out the *ai* each time into a plaintive, languid, and tremulous sound, in the same manner as is reported of the sloths of America. After having been thus teazed for a long time, and thoroughly awakened, he crawled two or three times round the cage, and immediately slept again."

It was clearly this slowness of motion, and conformity in its cry to the *aï* of America, that led M. Vosmaër to believe that it was the same animal; but I again repeat, that we have only to compare their figures, to be convinced of the contrary. We can conclude nothing else from all that M. Vosmaër has brought forward on the subject, unless that there are animals, perhaps, in the Old Continent, as slow as those in the New: but the name of sloth, which may have been given to them in common, in nowise proves that they are animals of the same genus.

Besides, this animal, which we have called Bengal loris, because we are unacquainted with its proper name, is found, or was formerly found, in the regions of Asia not near so far south as Bengal;

for we have acknowledged that the skull described by M. Daubenton, *Suite de la description des choses qui sont arrivées au cabinet du roi*, and which was got from a dry well of Ancient Sidon, belonged to this species; and we ought also to mention a tooth, which was sent me by M. Pierre Henry Tesdorpf, a learned naturalist at Lubec.

" This tooth," says he, " was sent me from China; it belongs to an animal as yet, perhaps, unknown to any naturalist: it perfectly resembles the canine teeth of an hippopotamus, of which I have a complete head with its skin on. As far as I am able to judge of this tooth, which is as handsome and complete as the last, though small (since it weighs but fourteen grains), it seems to be full grown, because it has been used by the animal, from which it was obtained, as much as the largest hippopotamus uses his. The black mark which we perceive on each side the point of the tooth, seems a proof that it is not from a young animal. The enamel is also precisely of the same kind as that of the canine teeth of the hippopotamus, which makes me think that this very little animal is nevertheless of the same class as the great hippopotamus*."

In 1771, I replied to M. Tesdorpf, saying, that I knew nothing of the animal to which this tooth appertained, and, in effect, it was not till the year 1775, that we had any knowledge of the

* Letter from M. Tesdorpf to M. de Buffon, dated Lubec, 1771.

Bengal loris, to which animal it belongs, as well as the skull found in the territory of Ancient Sidon.

It is to the first loris which I have described, to the loris of Bengal, that we must refer the name of thevanque, which M. D'Obsonville says that animal bears in the East Indies, and about which he has been so obliging as to give me the following information.

"The thevanque, which, according to M. D'Obsonville, is in India also called the *tatonneur* and *tongre*, inhabits the most solitary rocks and woods of the southern parts of India, as well as Ceylon: notwithstanding some similarities of organization, it belongs neither to the species of monkey, nor to that of makis: we believe it is a scarce animal.

"In 1775, I purchased a thevanque: it was, when standing, rather less than a foot in height; but it is said there are some of a larger size; however, mine appeared to be completely formed, for during the year which I had it, it did not grow at all.

"The back part of the head, as well as the ears, appeared very like a monkey's, but its forehead was larger in proportion, and flat: its muzzle is also slender, and shorter than that of a martin, it turns up above the eyes somewhat like that of the spaniels which we procure from Spain. Its large mouth, well furnished with teeth, was armed with four long and sharp *canines*. Its eyes were large and even with the head. The iris appeared of a gray-brown mixed with a yel-

lowish tint. The neck was short; the body very long. Above the haunches it was less than three inches in circumference. . . . . It had no tail; its buttocks were fleshy without callosities, and the fleshy part of a soft and agreeable whiteness; its breast was large; its arms, hands, and legs, appeared to be well shaped; however, the fingers are separated like those of monkeys. The hair of the head and back is of a dull tawny gray: on the fore part of the body it is thinner, and almost white.

"It walked with some difficulty; and was so slow, as to move at most four toises in a minute: its legs were too long, in proportion to its body, for it to run so conveniently as other quadrupeds; it moved more readily in an upright posture, and then it would even carry a bird between its fore-feet.

"It sometimes made a sort of modulation, or very gentle whistling; I could easily distinguish its cry of want, of pleasure, of pain, and even of chagrin, or of impatience. If, for example, I attempted to take away its prey, it appeared to change countenance, it emitted a kind of trembling cry, and then the sound was sharp. The Indians say, that, in coupling, it squats on its tail, and closes with the female face to face.

"The thevanque differs widely from the monkey in its exterior conformation, but still more in its character and habits: it is melancholy, silent, patient, carnivorous, and walks in the night, living insulated with its little family. All day long it remains squat on its tail, and

sleeps, supporting its head on its hands, which are closed between its thighs. But, while asleep, its ears are very sensible to impressions from without; and it neglects no opportunity to seize whatever is brought within its reach. Broad daylight seems to displease it; however, it does not appear that the pupils of its eyes contract, or are fatigued by the light of a room.

"The one I reared was at first confined, but afterwards left at liberty. On the approach of night, it rubbed its eyes; then, attentively looking about it on all sides, it walked upon the furniture, or rather on the ropes which I had placed for that purpose. Milk and some ripe fruits were not unpleasant to it, but it was fond only of birds and insects. If it perceived any of these last mentioned objects, it approached with a lengthened and cautious pace, like some one creeping in the dark on tip-toe, in order to surprise another: it stops when at about the distance of a foot from its prey; and, rising upon its legs, it advances, at first gently extending its arms, then all at once seizes and strangles it with singular agility.

"This unfortunate little animal perished accidentally: it appeared strongly attached to me; I used to caress it after I had given it victuals; it showed its sensibility by taking the end of my hand and pressing it against its bosom, and in fixing its half opened eyes on mine *."

* A very pleasing and interesting account of the slow lemur is inserted in the fourth volume of the Asiatic Re-

searches. It was written by the late sir William Jones, who paid great attention to his slothful companion, and who has described his figure, disposition, and habits, with much accuracy. There is something in the concluding sentence of his paper, which bespeaks the amiable character of that learned man. "My little friend," says sir William, "was, in the whole, very engaging; and when he was found lifeless, in the same posture in which he would naturally have slept, I consoled myself with believing that he had died without pain, and lived with as much pleasure as he could have enjoyed in a state of captivity." *W.*

37

AYE AYE.

THE AYE AYE*.

Aye Aye is an exclamation used by the inhabitants of Madagascar, which M. Sonnerat thinks ought to be applied to this animal, which is found in the western part of Madagascar. He says "that it does not assimilate with any genus, and that it partakes of the makis, the squirrel, and the monkey. Its large and flat ears greatly resemble those of the bat; they consist of two black skins, almost smooth, studded with several long black hairs tipped with white. Although the tail appears perfectly black, yet the lower half of the hairs are white. Its principal cha-

* CHARACTER SPECIFICUS.

LEMUR PSILODACTYLUS. L. cinereo-ferrugineus, cauda villosissima, digito palmarum medio longissimo nudo. — *Shaw's Gen. Zool.* i. p. 109.

AYE AYE. — *Sonnerat, Voy. aux Indes,* ii. p. 142, pl. 88.

AYE AYE. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 99, pl. 12.

AYE AYE SQUIRREL. — *Penn. Hist. Quadr.* ii. p. 142, pl. 75.

LONG-FINGERED LEMUR. — *Shaw's Gen. Zool.* i. p. 109, pl. 34.

HABITAT

in Madagascar. W.

racter, and one of the most singular, is the middle toe of the fore-feet: the two last articulations are very long, slender, and perfectly bare: it uses them to take off the worms from the trunks of the trees, and to pass them into its throat; they seem also to be of service to the animal for fixing itself to branches. It is a timid animal, and cannot see by day, and its eye, of an ochre-colour, resembles that of an owl. It is extremely slow, and consequently very gentle. This aye aye slept almost continually, and it was only by repeated shakings that it could be roused. It lived nearly two months, having nothing for its nourishment but boiled rice, which it took with its two toes, in the manner that the Chinese use their eating sticks.

I have closely examined the skin of one of these animals given me for the king's collection: it appeared to approach the squirrel kind more than any other; it had also some analogy with the species of jerboa which I have described by the name of tarsier. The length of the toes on the fore-feet appears to constitute a unique and very distinctive character.

This animal is of a dark brown colour, mixed with black and gray; it is, on the head, round the eyes, on the body, the thighs, and the legs, of a deep brown, in which, however, the black prevails on the back, and on several parts of the body and legs. The tail is quite black; the sides of the head, the neck, the jaw, and the belly, are grayish; the woolly hairs of this colour are beneath the black or white hairs, two or

three inches long, which are on the body and legs: the legs and thighs are ferruginous: the black prevails near the feet, which are covered with little hairs of that colour. The head is shaped like that of the squirrel; it has two cutting teeth in the front of each jaw *. The ears are large, naked, and without hair, wide at their opening, straight, and round at their ends. There is a brown band round the eyes, and the eyelids are black. The toes, which are two lines broad, are nearly of an equal size; but the first toe, which forms the thumb, and which is twelve lines long, has a nail of three inches six lines, which is large and flat, like those of the maucaucos. This character of the toe separates the animal far from the squirrel kind. Its hairs are harsh, like horse-hair. During the time that M. Sonnerat was in possession of this animal, he never observed it to set up its tail like the squirrels, but always to carry it trailing †.

The tarsier, of all the flat-thumbed animals, is that which approaches nearest to the aye aye; they have that character in common; and, moreover, resemble each other in the tail, which is long and covered with hairs; in the straight, naked, and transparent ears; and in the woolly hair, which immediately covers the skin. There

* Sonnini observes that these teeth are very close together, and resemble a parrot's beak: the lower ones are much the strongest. W.

† Buffon's figure, in this respect, is wrong. The middle toes are also too thick. W.

are also some marks of resemblance in the feet, for the tarsier has very long toes.

This aye aye was a female; she had two teats at the bottom of the belly: these teats measured five lines *.

* See the article Aye aye in Sonnerat's Voyage to the East Indies, tom. ii. p. 137. He had a male and female alive.

141

Plate 321

SERVAL.

THE SERVAL, OR MOUNTAIN CAT*.

THIS animal, which lived several years in the royal menagery, appears to be the same with that described by the gentlemen of the academy, under the name of *chat-pard;* and we should, perhaps, have been still ignorant of its real name, if the marquis de Montmirail had not

* CHARACTER SPECIFICUS.

FELIS SERVAL. F. cauda subabbreviata, corpore supra fusco maculis nigris, orbitis ventreque albis.—*Linn. Syst. Nat. Gmel.* i. p. 82.—*Schreb.* iii. p. 407, pl. 108.—*Erxleb. Mamm.* p. 523.

CHAT PARD.—*Perr. Anim.* i. p. 108, tab. 13, fig. bona.—*Mem pour servir à l'Histoire des Animaux,* part. i. p. 109.

LE SERVAL.—*Buff. Hist. Nat. par Sonn.* xxxiii. p. 140, pl. 14.

SERVAL.—*Penn. Hist. Quadr.* i. p. 301.—*Shaw's Gen. Zool.* i. p. 369, pl. 90.

HABITAT

in silvis montosis Indiæ, in arboribus degens, vix descendens in terram, saliensque ex arbore in arborem.

W.

Serval is the name which the Portuguese have given to this animal. The natives of Malabar call it *maraputé.*

discovered it in an Italian book, of which he sent us the following passage in our own language: "The *maraputé*," says P. Vincent Marie, "which the Portuguese in India call *serval*, is a ferocious animal, larger than a wild cat, and somewhat less than the civet; from which last he differs, by having a rounder and larger head, and a kind of depression on the middle of the forehead. He resembles the panther in the colour of his hair, which is yellow on the head, back, and flanks, and white on the belly; and likewise in the spots, which are distinct, equally distributed, and a little smaller than those of the panther. His eyes are extremely brilliant. His whiskers are long and stiff; his tail is short; and his feet are armed with long hooked claws. He inhabits the mountains of India. He is seldom seen on the ground, but remains always on the trees, where he makes his nest, and seizes birds, which constitute his chief nourishment. He leaps from tree to tree as nimbly as a monkey, and with such address and agility, that he runs through a considerable space in an instant, and may be said only to appear and disappear. He is extremely fierce, and yet he flies the aspect of man, unless when provoked, and particularly when his dwelling is injured: he then becomes furious, darts upon the offender, and bites and tears nearly in the same manner as the panther."

Neither captivity, nor good or bad treatment, can soften the ferocity of this animal. The one we saw at the menagery was always prepared to

dart upon those who approached him; and we were obliged to draw and describe him through the grate of his apartment. He was fed with flesh like the panthers and leopards.

This serval, or maraputa of Malabar and India *, appeared to be the same animal with the tiger-cat of Senegal and the Cape of Good Hope, which, according to the testimony of travellers †, resembles the cat in its figure, and the tiger (that is, the panther or leopard) by the black and white spots of its hair. "This serval," they remark, "is four times larger than a cat. He is very voracious, and eats apes, rats, and other animals."

From comparing the serval with the *chat-pard*, or mountain cat described by the gentlemen of the academy, we discovered no other differences than the long spots on the back, and the annulated tail of the former, which were wanting in the latter. The spots on the back of the serval are only placed nearer each other than on the rest of the body. But these differences are too slight to create any suspicion concerning the identity of the species of these two animals.

* At Sagari, an island in the Ganges, there are tiger-cats as large as a wedder. — *Nouv. Voyage par le Sieur Luihier*, p. 90.

† Voyage de Le Maire, p. 100.—The wood-cat, or tiger-cat, is the largest of all the wild cats in the Cape. He lives in the woods, and is spotted nearly in the same manner as the tiger. The skins of these animals are excellent furs both for warmth and ornament, and they bring a good price at the Cape. — *Descript. du Cap de Bonne Esperance, par Kolbe*, tom. iii. p. 50.

THE OCELOT, OR MEXICAN CAT*.

THE ocelot is an American animal. It is ferocious and carnivorous, and may be ranked with the jaguar and couguar; for it approaches

* CHARACTER SPECIFICUS.

FELIS PARDALIS. F. cauda elongata, corpore maculis superioribus virgatis, inferioribus orbiculatis. — *Linn. Syst. Nat. Gmel.* i. p. 78. — *Schreb.* iii. p. 390, pl. 103.

Felis rufa, in ventre ex albo flavicans, maculis nigris, in dorso longis, in ventre orbiculatis variegata. — *Briss. Quadr.* p. 199.

Catus pardus, sive catus montanus Americanorum. — *Ray's Quadr.* p. 169.

Tlacoozelotl. Tlacozelotl. Catus pardus Mexicanus. — *Hernand. Mex.* p. 512, cum fig.

DIE WILDE KATZE. — *Mull. Naturf.* i. p. 239, pl. 30, fig. 7.

L'OCELOT. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 144. pl. 15.

The LYNX OF GUIANA. — *Bancr. Guian.* p. 140.

MEXICAN CAT. — *Penn. Quadr.* i. p. 287, pl. 57, A.

OCELOT. — *Shaw's Gen. Zool.* i. p. 356, pl. 88.

HABITAT

in America calidiore, præsertim terra firma, California et Nova Hispania.

W.

144

OCELOT.

FEMALE OCELOT.

them in magnitude, and resembles them in figure and dispositions. A male and female were brought alive to Paris by M. l'Escot, and we saw them at the fair of St. Ovide in the month of September, 1764. They came from the neighbourhood of Carthagena, and had been carried off from their mother when very young, in the month of October, 1763. At the age of three months, they had become so strong and cruel, that they killed and eat a bitch which had been given to them for a nurse. At the age of one year, when we saw them, they were about two feet in length; and it is probable that they

The Mexican cat has its head, back, upper part of the rump, and tail, of a bright tawny colour. A black stripe extends along the top of the back, from head to tail. From the nostrils to the corners of the eye is a stripe of black, and the forehead is spotted with black. The sides are whitish, marked lengthwise with long stripes of black, hollow and tawny in the middle; in which are sprinkled some small black spots; from the neck towards the shoulder-point are others of the same colours, and the rump is marked in the same manner. The legs are whitish, varied with small black spots. The tail is spotted with small black spots near its base, and with larger near the end, which is black. — *Penn. Synops. Quadr.* p. 177.

Pardalis. Felis cauda elongata, corpore maculis superioribus virgatis, inferioribus orbiculatis . . . habitat in America. Magnitudo melis, supra fuscus, subtus albicans; lineæ punctaque nigra per totum corpus longitudinaliter sparsa; sed pedes et abdomen tantum punctis, latera lineis latioribus albis et fuscis pinguntur. Aures breves margine bifidæ absque penicillis, pedes 5-4 cauda verticillata proportione cati. Mystaces 4 ordinum, in singulo ordine setæ 3, sive 5, albæ, basi nigræ, longitudine capitis. — *Linn. Syst. Nat.* p. 62.

had not then acquired above one half or two thirds of their full growth. They were exhibited under the name of the *tiger-cat;* but we have rejected this precarious and compound appellation, because the jaguar, the serval, and the margay, or Cayenne cat, were transmitted to us under the same denomination, though each of these animals differs from the other, as well as from the ocelot.

Fabri is the first author who mentions this animal in a distinct manner. He caused the drawings of Recchi to be engraved, and from these drawings, which were coloured, he composed a description of the ocelot. He likewise gives a kind of history of it from the writings and information of Gregoire de Bolivar. I have made these remarks with a view to remove a difficulty which had deceived all the naturalists as well as myself. This difficulty is to ascertain whether the two animals drawn by Recchi, the first under the name of *tlatlauhqui-ocelotl*, and the second under that of *tlacoozlotl*, *tlalocelotl*, and afterwards described by Fabri as distinct species, are not the same animal. Though the figures are pretty similar, they were regarded as distinct animals, because their names, and even the descriptions of them, were different. I at that time imagined that the first might be the same with the jaguar, and therefore gave it the Mexican name *tlatlauhqui-ocelotl*, which I now perceive did not belong to it: and, since I had an opportunity of seeing both the male and fe-

male, I am persuaded that the two described by Fabri are only the same animal, of which the first is the male and the second the female. Nothing less than an examination of the male and female together could have enabled us to detect this error. Of all spotted animals, the robe of the male ocelot is unquestionably the most beautiful, and the most elegantly variegated *. Even that of the leopard is not to be compared with it for vivacity of colours and symmetry of design, far less those of the jaguar, panther, and ounce. But, in the female ocelot, the colours are fainter, and the design more irregular. This remarkable difference deceived Recchi, Fabri †, and others.

When the ocelot has acquired his full growth, he is, according to Bolivar, "two feet and a half

* Universum corpus pulchro roseoque subrubet colore, excepto inferiore ventre qui albicat potius; maculis rosarum effigie, nigricantibus omnibus intra suave rubentem colorem, totum ita corpus, pedes et cauda ordine quodam distinguuntur ut elegantem plane huic animali acu pictum tapetem vel peripetasma impositum crederes: sunt autem maculæ hæ in dorse et capite rotundiores majoresque: versus ventrem vero pedesque oblongiusculæ et multo minores. — *Fabri apud Hernand. Hist. Mex.* p. 498.

† Si animalis figuram spectemus cum antecedente non nihil corporis delineatio congruit; si colorem et maculas quibus pingitur, plurimum discrepat. In hoc totius color corporis non rubicundus sed obscure cinereus apparet, præter ventrem tamen qui albicat. Maculæ nec ordinatæ adeo nec ita rotundæ roseive coloris et figuræ, sed oblongæ nigricantes omnes, in medio vero albicantes sparguntur; crura non ita fortia, &c. — *Ibid.* p. 512.

L 2

high, and about four feet in length. The tail, though pretty long, touches not the ground, and, of course, exceeds not two feet. He is a very voracious, and, at the same time, a timid animal. He seldom attacks men, and is afraid of dogs. When pursued, he flies to the woods, and climbs a tree, where he remains, in order to sleep, and to watch the passage of cattle or smaller animals, and darts down upon them, whenever they are within his reach. He prefers blood to flesh: hence he destroys a great number of animals; because, instead of satiating himself by devouring their flesh, he only quenches his thirst by drinking their blood *."

In a state of captivity, he retains his original manners. Nothing can soften the natural ferocity of his disposition, or calm the restlessness of his movements. For this reason, he is always kept in a cage. "At the age of three months," says M. l'Escot, "when these two young ocelots had devoured their nurse, I kept them in a cage, and fed them with fresh meat, of which they eat from seven to eight pounds a-day. The male

* Dampier mentions this animal under the name of the *tiger-cat*. "The tiger-cat of the Bay of Campeachy is about the size of a bull-dog. His legs are short, and his body resembles that of a mastiff. But, in the head, hair, and the manner of hunting his prey, he has a great similarity to the tiger (*jaguar*), except that he is not so large. They are here very numerous. They devour calves, and game of all kinds, which abound in this country, and which render them less dangerous to men . . . their aspect is extremely proud and ferocious. — *Dampier's Voyage*, vol. ii. p. 62.

and female rub against each other like our domestic cats. The males have a remarkable superiority over the females. Notwithstanding the violent appetite of these two animals for flesh, the female never presumed to partake till the male was satiated, or gave her the pieces he had rejected. I sometimes gave them a live cat, whose blood they sucked till the animal died; but they never eat its flesh. I put on board two kids for their subsist[illegible] [illegible]or they neither eat boiled nor salted meat *."

It appears from the testimony of Bolivar, and likewise from that of M. l'Escot, that the female ocelot produces but two young at a litter; for the latter informs us, that, before the two young ones mentioned above were taken, the mother was killed. The ocelots, like the jaguar, the panther, the l[illegible]pard, the tiger, the lion, and all animals rem[illegible]able for the largeness of their size, produce but a small number at a time. But the productions of a cat, that may be associated with this tribe, are numerous; which is a proof, that the number produced depends more upon magnitude than figure †.

* Letter of M. l'Escot, who brought these animals from Carthagena to M. de Beost, correspondent of the Academy of Sciences, dated September 17, 1764. *Nota*, M. de Beost, who obligingly sent this letter to us, is a great adept in natural history; and this is not the only opportunity we shall have of mentioning his communications.

† D'Azara informs us, that the ocelot is so common in Paraguay, that, within two leagues of the town of St. Ignace, eighteen have been caught in two years: nevertheless, he

adds, that it is not much known, because the dogs never find it, and are unable to penetrate into its retreats. It preys in dark and tempestuous nights, entering into enclosures and court-yards. When first caught and confined, it requires five pounds of meat a-day; afterwards, three pounds will be sufficient.

W.

571

Plate 324

MARGAY.

THE MARGAY, OR CAYENNE CAT*.

THE margay is much smaller than the ocelot. In size and figure, he resembles the wild cat, only his head is more square, his muz-

* CHARACTER SPECIFICUS.

FELIS TIGRINA. F. cauda elongata, corpore fulvo nigro striato maculatoque, subtus albido. — *Linn. Syst. Nat. Gmel.* i. p. 80. — *Erxleb. Mamm.* p. 517. — *Schreb.* iii. p. 369. pl. 106.

Felis ex griseo flavescens, maculis nigris variegata. — *Briss. Quadr.* p. 193.

Felis silvestris Americanus tigrinus. — *Seba, Mus.* i. p. 47, pl. 30, fig. 2.

Felis fera tigrina. — *Barr. Fr. Equin.* p. 152. — *Fermin Surin.* ii. p. 85.

Maraguao sive Maracaja. — *Marcgr. Bras.* p. 233.

Die Wilde Amerikanische Tiegerkaz. — *Meyer Thiere.* iii. pl. 22, fig. Sebæ.

LE MARGAY. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 152, pl. 14.

THE TIGER CAT OF GUIANA. — *Bancroft*, p. 139.

CAYENNE CAT. — *Penn. Hist. Quadr.* i. p. 292.

MARGAY. — *Shaw's Gen. Zool.* i. p. 359, pl. 90.

HABITAT

in America Australi. W.

zle and tail longer, and his ears more rounded. His hair is also shorter than that of the wild cat, and he is marked with black bands and spots upon a yellow ground colour. He was sent to us from Cayenne, under the name of the *tiger-cat.* He, indeed, is of the same nature with the cat, jaguar, and ocelot, animals who have received the appellation of *tigers* in the New Continent. According to Fernandez, this animal, when full grown, is not so large as the civet; and, according to Marcgrave, whose comparison seems to be more just, he is of the size of a wild cat, which he resembles likewise in natural dispositions, living on small animals, poultry, &c. But it is extremely difficult to tame him, and he never loses his natural ferocity. His colours vary, though they are generally such as we have represented them. This animal is very common in Guiana, Brasil, and all the other regions of

Cayenne cat, with the upper part of the head, neck, back, sides, shoulders, and thighs, of a bright tawny colour. The face is striped downwards, with black. The shoulders and body are marked with stripes, and oblong, large, black spots, and the legs with small spots. The breast, and inside of the legs and thighs, are whitish, and spotted with black. The tail is very long, and marked with black, tawny, and gray. It is of the size of a common cat. — *Pennant's Synops. of Quad.* p. 182.

Margay, a word derived from *maragua,* or *maragaia,* the Brasilian name of this animal.

At Maragnon there is a species of wild cats, which the Indians call *margaia,* with beautifully spotted skins. — *Miss. du P. d'Abbeville,* p. 250.

South America; and he seems to be the same with the pichou * of Louisiana. But the species is not so frequent in temperate as in warm climates.

To the article *margay* we must refer the tiger-cat of Cayenne, mentioned by M. de la Borde in the following terms:

"The skin of the tiger-cat, like that of the ounce, is very much spotted. Though he has the dispositions of the fox, he is somewhat smaller. He is commonly found in the woods of Cayenne. He is a great destroyer of game, such as the agoutis, akouchis, partridges, pheasants, and other birds, whose young he seizes in their nests. He is very alert in climbing trees, where he conceals himself. He runs by a kind of leaping; but his motion is not quick. In his aspect, gait, and manner of lying in wait, he has a perfect resemblance to the cat. At Cayenne, I have seen several of them chained in the houses. They allowed themselves to be stroked a little on the back. But they always retained a degree of ferocity in their aspect. They were fed with fish and meat, boiled or raw: every other food was disagreeable to them. They produce in all seasons, whether summer or winter, and

* The pichou is a kind of cat as tall as a tiger, but not so thick. His skin is equally beautiful. He makes great devastation among poultry; but happily he is not very common in Louisiana.—*Hist. de la Louisiane, par le Page du Pratz*, tom. ii. p. 92, fig. p. 67.

bring forth two at a time in the hollows of corrupted trees *."

If we take a survey of these cruel animals, whose skins are so beautiful, and whose nature is so perfidious, we shall find, in the Old Continent, the tiger, panther, leopard, ounce, and serval; and, in the New Continent, the jaguar, ocelot, and margay, which three appear to be miniatures of the former, and possessing neither the same stature nor strength; they are also timid and dastardly, in proportion as the others are bold and intrepid.

There is still another animal of this genus, which the furriers call *guepard.* We have seen several skins of it, which resembled those of the lynx in the length of the hair. But, as the ears are not terminated by pencils, the guepard is not a lynx. Neither is he a panther nor a leopard; for his hair is not short, and he has a mane of four or five inches long on his neck and between

* Stedman tells us that the skin of the margay is of a beautiful yellow, with little white patches on it, bordered with black. It is a very active animal; but is as fierce, as destructive, and as savage as the jaguar and the cougar. The tiger cats of Guiana are so bold, as to be almost fearless of mankind. One evening, when Stedman, during one of his excursions, had slung his hammock in the woods, between two trees, he perceived one of these animals beneath it, quietly employed in devouring the remains of their supper; and, although there were ten or twelve people seated round a great fire, he did not disturb himself, till Stedman moved to get his sword.

W.

his shoulders. The hair on his belly is likewise three or four inches in length, and his tail is proportionally shorter than that of the panther, leopard, or ounce. He is nearly of the size of this last animal, being only about three feet and a half long. His fur, which is of a very pale yellow colour, is speckled, like that of the leopard, with black spots; but they are smaller and nearer each other, being only three or four lines in diameter.

I imagined that this animal was the same with that mentioned by Kolbe under the name of the *tiger-wolf*, whose description is below *. He is common in the neighbourhood of the Cape of Good Hope. During the day he remains in the clefts of rocks, or in holes which he digs in the earth; and, in the night, he goes in quest of prey. But, when he hunts, he makes a howling noise, which alarms both men and animals; so that it is easy either to avoid or to kill him. In fine, the word *guépard* seems to be

* He is of the size of a common dog, and sometimes larger. His head is as big as that of a bull-dog. His chops, as well as his muzzle and eyes, are large, and his teeth are very sharp. His hair is curled, like that of a water-dog, and spotted like that of a tiger. His paws are large, and armed with great claws, which he retracts at pleasure, like the cats. His tail is short. . . . The lion, tiger, and leopard are his mortal enemies. They pursue him even to his den, dart upon him, and tear him in pieces.—*Descript. du Cap de Bonne Esperance, par Kolbe*, tom. ii. p. 69. *Nota*, The animal which this author calls the *tiger*, is the leopard, and what he calls the *leopard*, is the panther.

derived from *lépard*, the mode in which the Germans and Dutch spell *leopard*. We have also remarked, in this species, varieties both in the ground colour and in that of the spots. But all the guepards have the common characters of long hair on the belly, and a mane on the neck.

THE TIGER-CAT OF CAROLINA*.

THERE is another tiger-cat, or rather a species of wild cat, in Carolina, of which the late Mr. Colinson sent me the following notice:

"The male was of the size of a common cat, being nineteen inches long from the nose to the tail, which last was four inches in length, and had eight white rings, like the maucauco. His colour was a bright brown, mixed with gray hairs. He was remarkable for pretty large black bars along the body and sides, from the head to the tail. The belly is whitish, with black spots. The limbs are slender, and spotted with black. His ears have a large aperture, and are covered with fine hair. On each side of the nose, below the eyes, are two large and remarkable black spots; below these spots, and joining the lip, there is a tuft of stiff black hairs. The make of the female is more slender. She is of a reddish gray colour, without any spots on the back; but, on the belly, which is of a dirty white colour, there is a black spot."

* Chat-Tigre de la Caroline.—*Buff. Hist. Nat. par Sonn.* xxxiii. p. 159.

Mountain Lynx.—*Penn. Hist. Quadr.* i. p. 300.

American Serval.—*Shaw's Gen. Zool.* i. p. 370.

W.

THE WILD CAT OF NEW SPAIN *.

A coloured drawing has been sent me from Spain, with the following notice of a tiger-cat, or cat of the woods, which I have figured.

" Tiger-cat, cat of the woods, or wild cat of New Spain. It is nearly three feet high, and more than four in length, from the end of the nose to the origin of the tail: it has two little eyes, and its tail is rather short. Its colour is bluish-gray, spotted with black: its hair is so stiff, that pencils may be made of it with a firm point."

I conceive this tiger-cat, or cat of the woods, from New Spain, to be the same as the serval, which I have previously figured.

* Le Chat Sauvage de la Nouvelle Espagne. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 161, pl. 16.

New Spain Cat. — *Penn. Hist. Quadr.* i. p. 299.

Dr. Shaw considers this as a variety only of the preceding species. *W.*

158

WILD CAT *of* NEW SPAIN.

THE BIZAAM*.

IN the year 1771, M. Vosmaër printed, at Amsterdam, the description of an animal under the name of *bizaam cat;* of which description the following is an extract:

"It is nearly of the size of the common cat; the general colour of the body is a clear ash-gray, enriched with brown patches. A black line runs along the middle of the back to the tail, which is ringed white and black; the tip is black, or of a very deep brown. The feet are brown within, and gray, spotted with brown,

* CHARACTER SPECIFICUS.

VIVERRA TIGRINA. V. cauda annulata apice fusca, corpore cinereo fusco-maculato, stria a capite ad caudam producta nigra.—*Linn. Syst. Nat. Gmel.* i. p. 91.—*Schreb.* iii. p. 425, pl. 115.

CHAT BIZAAM.—*Vosmaër, Descr. d'une espece sing. de Chat Africain. Amst.* 1771.

LE BIZAAM.—*Buff. Hist. Nat. par Sonn.* xxxiii. p. 162, pl. 16.

TIGERINE WEESEL.—*Shaw's Gen. Zool.* i. p. 408, pl. 93.

BLOTCHED CAT.—*Penn. Hist. Quadr.* i. p. 298.

HABITAT

in Capite Bonæ Spei; W.

on the outside: the belly and breast are ash-gray: there are brown stripes on both sides of the head, and on the nose; and white spots at the end of the nose, and under the eyes. The round and straight ears are covered with short and gray hairs: the nose black, and the whiskers brown and white. The feet are armed with little white and crooked claws, which are within the fur.

"This pretty animal was rather of a sullen temper, without, however, being mischievous: it was secured by a chain. It readily ate meat, but particularly live birds. It was never heard to mew; but, when tormented, it growled and spit, like a cat."

M. Vosmaër adds that this *bazaam cat* was kept for three years, and that, during that time, it never smelt in the slightest degree of musk: therefore, those who have called it *musk cat*, have apparently confounded it with the civet, or Cape genet; nevertheless, these two animals do not resemble each other at all, for M. Vosmaër compares the bizaam to the margay. "Of all the animals," says he, "that M. de Buffon has described, the margay of Cayenne bears the strongest resemblance to the bizaam cat, although, when we compare them, the margay has a much thinner and more pointed muzzle: it differs greatly also in the tail, and in the shape of the spots."

I must observe, on this subject, that these principal differences have been properly noticed by M. Vosmaër; but these animals differ

Plate 326

BIZAAM.

also in size; the margay being as large as the wild cat, and the bizaam as the domestic cat, that is to say, as small again. Besides, the margay has no black stripe on the back; its tail is much shorter, and not so pointed; and what decides the true specific difference between the margay and the bizaam, is, that one is of the Old Continent, and the other of the New*.

* This animal has been referred by Schreber, and after him by Gmelin, to the genus viverra. Dr. Shaw has also followed these naturalists in this respect, but with some hesitation, since he observes that Pennant, in the last edition of his History of Quadrupeds, refers this animal to the genus felis, and adds, that, from M. Vosmaër's figure, it should seem to have at least equal affinity to that genus as to the present. The bizaam appears to me to have *more* than equal affinity to the genus felis, both in its shape and manners; and I perfectly agree with Pennant, although, in deference to the abovementioned naturalists, I have not altered its generic name. *W.*

THE JACKAL AND ADIVE*.

WE are uncertain whether these two names denote animals of different species. We only know, that the jackal is larger, fiercer, and more

* CHARACTER SPECIFICUS.

CANIS AUREUS. C. cauda recta, corpore pallido fulvo.— *Linn. Syst. Nat. Gmel.* i. p. 72. — *Schreb.* iii. p. 365, pl. 94. — *Erxleb. Mamm.* p. 571.

CANIS FLAVUS. — *Briss. Quadr.* p. 171.

LUPUS AUREUS. — *Ray's Quadr.* p. 174. — *Kæmpf. Am. Ex.* p. 413, pl. 407, fig. 3.

VULPES INDIÆ ORIENTALIS. — *Valent. Mus.* p. 452, pl. 452.

ADIL. — *Belon, Observ.* p. 160.

CHIEN SAUVAGE INDIEN. — *Vosmaër, Descr. Amst.* 1773.

LE CHACAL ET L'ADIVE. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 167, pl. 17.

SCHAKAL. — *Penn. Hist. Quadr.* i. p. 261.

JACKAL. — *Shaw's Gen. Zool.* i. p. 304, pl. 79. — *Bew. Quadr.* p. 292.

HABITAT

in Asiæ regionibus calidioribus, et in Barbaria.

W.

Dog of the form of a wolf, but much less. The colour is a bright yellow. — *Pennant's Synops. of Quad.* p. 158.

difficult to tame than the adive*; but that, in every other article, the resemblance is perfect. Hence the adive may be only the jackal rendered smaller, feebler, and more gentle than the wild race, by being tamed and kept in a domestic state; for the adive is to the jackal nearly what the lap-dog, or small water-dog, is to the shepherd's dog. However, as this fact is exemplified in a few instances only; as the species of the jackal is not, in general, domestic, like that of the dog; and, as differences so great seldom happen among free species; we are inclined to believe that the jackal and adive are really two distinct species. The wolf, the fox, the jackal, and the dog, though they approach very near each other, constitute four different species. In the dog kind, the varieties are extremely numerous. Most of these originate from their domestic condition, to which they have been very early reduced. Man has multiplied the races of this species by mixing the great and the small, the beautiful and the ugly, the long and the short haired, &c. But, independent of these

Chacal, jackal, the name of this animal in the Levant. It has likewise received the following denominations from different authors: Adil; *Belon.* Tulki; *Olearius.* Siacalle; *Le Brun.* Addibo; *P. Vincent Marie.* Chical; *Hasselquist.* Sical; *Pollux.* Squilachi; *Belon.* Zacalia; *Spon* and *Wheeler.* Siachal, Schacal, Siechaal, Siacali; *Koempfer.* Jacard; *Delon.* Deeb; *Shaw.* Jaqueparel, in Bengal, and Nari in Madeira, according to other travellers.

* I have read, in some of our French chronicles, that, in the reign of Charles IX., many of the court ladies kept adives, instead of lap-dogs.

races produced by man, there are several varieties which seem to derive their origin from the climate. The English bull-dog, the Danish dog, the spaniel, the Turkish Dog, the Siberian dog, &c., have received their denominations from the countries which produced them; and they appear to differ from each other more than the jackal does from the adive. Hence the jackals may have undergone several changes from the influence of different climates; and this idea corresponds with the facts we have collected. From the writings of travellers it appears, that the jackals every where vary in size; that in Armenia, Cilicia, Persia, and in all that part of Asia called the *Levant*, where this species is very numerous, troublesome, and noxious, they are commonly as large as our foxes*, only their

* The jacard or adive is as large as a middle-sized dog, and resembles the fox in its tail, and the wolf in its muzzle. They are reared in houses; but their natural disposition is to conceal themselves, during the day, in the earth, from which they go out in the night only to search for food. They go in packs, put the men to flight, and devour the children. Their cries are plaintive, and a person is apt to mistake the noise they make for that of children of different ages mingled together. The dogs hunt and drive these animals from the habitations of men.—*Voyage de Delon*, p. 109. In Persia there is a species of fox called *schacal*, which the natives commonly denominate *tulki*. They are extremely numerous, and nearly of the size of European foxes. The back and sides are covered with a kind of coarse wool and long stiff hairs. The belly is white as snow, the ears black as jet, and the tail is smaller than that of our foxes. We heard them roaming during the night around the village where we had put up, and were much troubled with their mournful and in-

legs are shorter, and their colour is a brilliant yellow; from which circumstances they have

cessant cries, which resembled the voices of men in distress.—*Voyage d'Olearius*, p. 531. The addibo (*adive*) resembles the wolf in figure, hair, and tail. But it is smaller, and even less than the fox. It is an extremely voracious, but a stupid animal. In the night it roams about, and remains in its hole during the day. In the dusk of the evening, nothing else is to be seen in the fields. These animals approach travellers, and stop to reconnoitre them, without any appearance of fear. They enter the houses and churches, where they tear and devour every thing they can find. Whatever is made of leather is a favourite morsel. The adive yelps like a fox; and when one cries, all the rest reply. This instinct of crying all together seems not to be voluntary, but to proceed from pure necessity; for when one of them enters into a house to steal, and hears the cries of his companions at a distance, he cannot refrain from crying also, and by this means detects himself.—*Voyage du P. Fr. Vincent Marie*, ch. 13. A chacali was kept for ten months in a house where I lived some time. This animal has so great a resemblance to the fox in size, figure, and colour, that most travellers are at first deceived with it. The greatest difference between them is in the head, the chacali having a head like a shepherd's dog with a long muzzle, and in the hair, which is coarse, like that of the wolf. Its colour is also similar to that of the wolf; and it sends forth a stench, which infects every thing it touches. . . . . This animal is extremely bold and voracious. . . . . He is not afraid to enter the houses. . . . . When he meets a man, instead of flying instantly, like other animals, he looks at him with as much boldness as if he meant to brave him, and then runs off. He is very mischievous, and always apt to bite, whatever care is taken to soften him by caresses, or by giving him food. The one formerly mentioned, though taken when very young, and reared with as much attention as a favourite dog, was never rendered perfectly tame: he allowed nobody to touch him, and bit every person indiscriminately. He could never be prevented

been called the *yellow*, or *golden wolf*. In Barbary, the East Indies, the Cape of Good Hope, and the other provinces of Africa and Asia, this species seems to have undergone several variations*. In these warm countries, they are large; the hair is rather of a brownish-red than of a fine yellow, and some of them are of different colours†. The species of the jackal is diffused over all Asia, from Armenia as far as Malabar‡, and is likewise found in Arabia, Bar-

from leaping on the table, and carrying off every thing he could lay hold of. All the country of Natolia is crowded with these chacalis. During the night, they make a hideous noise round the villages, not only by barking like dogs, but by a certain sharp cry which is peculiar to them.—*Voyage de Dumont*, tom. iv. p. 29.

* At the Cape of Good Hope there is another kind of jackal, which I think may be considered as specifically different, though there is a very great resemblance between the two. It is the *Canis Mesomelas*, Linn. Gmel. Dr. Shaw has copied the figure of this animal from Schreber's work, and has introduced it into his General Zoology. He there observes that the figure of the jackal given by the count de Buffon, seems, according to Schreber, to be much more nearly allied to this animal, than to the *Canis Aureus*.

The Barbary jackal is also considered as a distinct species. See Pennant and Shaw. *W.*

† The jackal which the subjects of the king of Comania, near Acra, brought us, was as large as a sheep; but its legs were taller. Its hair was short and spotted, and its paws prodigiously thick in proportion to its body. . . . . Its head was also very thick, flat, and broad, and each of its teeth exceeded an inch in length. . . . . Its feet are armed with prodigiously strong claws.—*Voyage de Bosman*, p. 331.

‡ In Bengal there are wild dogs, called *jacquepxrels*, or *bawling dogs*, whose hair is red. During the night, they go along the banks of the Ganges barking in a hideous manner.

bary *, Mauritania, Guinea †, and the Cape of Good Hope. It seems to be destined to sup-

Their voices and their cries are so various and confused, that a man cannot hear himself speak. They turn not aside when the Moors pass near them. . . . . These animals are common in almost all the East India islands. — *Voyage d'Innigo de Biervillas*, prem. part. p. 178. In Madeira there is a kind of wild dog, or rather fox, which the Indians call *nari*, and the Portuguese *adiba*. . . . . When I travelled in the night, I heard these animals howling perpetually. — *Lettres Edifiantes, recueil* xii. p. 98. In Guzarat there is a species of wild dog called jackals. — *Relation de Mandelslo, apud Olear.* tom. ii. p. 234. In the Malabar country, I saw a great number of jackales or jackals. I saw them also in the woods of Ceylon. They resemble the fox, particularly in the tail. . . . They are extremely fond of human flesh. . . . : They followed our army, and tore up the dead from their graves. . . . . In the night, we often heard the dismal cries of these animals, which resembled those of enraged dogs. . . . . They cry alternately, as if they answered each other. — *Recueil des Voyages de la Compagnie des Indes Orientales,* tom. vi. p. 980. All the country of Calicut is likewise infested with foxes, (*jackals*) which come during the night into the town, and roam about like dogs. In the gardens and highways, no other noise is to be heard. — *Voyage du Fr. Pyrard,* tom. i. p. 427. The schecale is a kind of wild dog. . . . . They are so numerous in the environs of Surat, that we could not hear one another, on account of the great noise they made, crying distinctly *oua, oua, oua,* which approaches to the barking of a dog. This animal is fond of dead bodies. . . . . They are likewise frequent in the deserts of Arabia, along the banks of the Tigris and Euphrates, and in Egypt. — *Voyage de la Boulaye le Gouz,* p. 254.

* The deep is of a darker colour than the fox, though near the same bigness. It yelps every night about the gardens and villages, feeding as the dubbah does, upon roots, fruits, and carrion. Mr. Ray supposes it to be the lupus aureus of the ancients; though what Oppian describes by that name is

ply that of the wolf ‡, which is wanting, or at least is extremely rare, in all warm countries.

However, as the jackals and adives are found in the same countries, as the species could not be degraded by continuing long in a domestic state, and as there is always a considerable difference both in the size and dispositions of these animals, we shall regard them as distinct species, till it be proved by facts that they intermix and produce together. Our conjecture concerning

larger, and of a much fiercer nature. — *Shaw's Travels*, p. 174.

† In Guinea, and still more commonly in the countries of Acra and Acambou, there is a very cruel animal, which our people call *jackal*. . . . . In the night, they come under the very walls of the fort we have in Acra, in order to carry off from the stables, hogs, sheep, &c. — *Voyage de Bosman*, p. 249, 331. The wild dogs of Congo, called *Mebbia*, are mortal enemies to all kinds of quadrupeds. They differ little from our hounds. They go in packs of thirty, forty, and sometimes in greater numbers. . . . . They attack all kinds of animals, and their number generally ensures them of success. They never assail men. — *Voyage du P. Zuchel, cité par Kolbe*, p. 293. The wild dog of the Cape of Good Hope resembles those of Congo described by P. Zuchel, &c. — *Descript. du Cap de Bonne Esperance, par Kolbe*, part iii. p. 48. At the Cape there is an animal which approaches the fox. Gesner and others call it the *cross fox*. The Europeans of the Cape give it the name of *jackal*, and the Hottentots that of *zenlie* or *kenlie*. — *Id. ib.* p. 62.

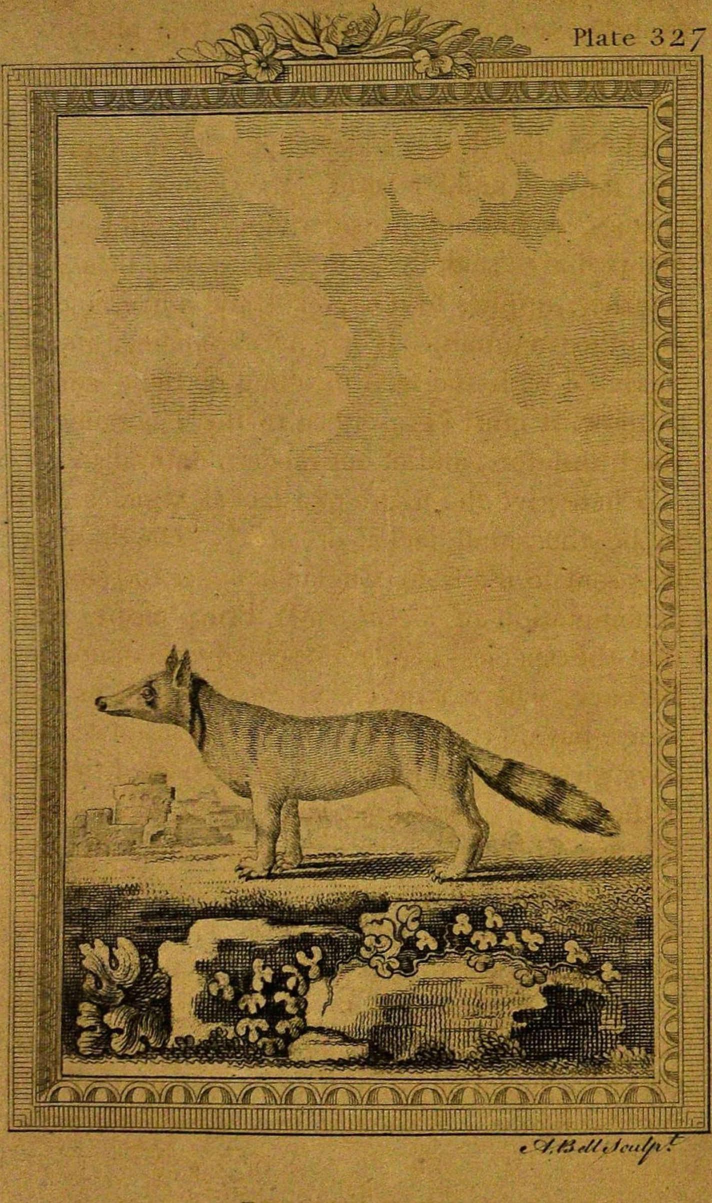
‡ I remarked, that there are no wolves in Hyrcania, nor in the other provinces of Persia; but that we every where meet with the *chacal*, whose cry is frightful. It is particularly fond of dead bodies, which it tears out of the graves. — *Voyage de Chardin*, tom. ii. p. 29.

the difference of these two species is the better founded, as it seems to accord with the opinion of the ancients. Aristotle, after mentioning the wolf, the fox, and the hyæna, gives some obscure intimations with regard to two other animals of the same genus, the one under the name of the *panther*, and the other under that of *thos*. The translators of Aristotle have rendered *panther* by *lupus canarius*, and *thos* by *lupus cervarius*. From this interpretation it is obvious, that they considered the panther and thos to be animals of the same species. But I demonstrated, under the article *Lynx*, that the *lupus cervarius* of the Latins is not the *thos* of the Greeks. This *lupus cervarius* is the same with the *chaus* of Pliny, and with our lynx, which has not a single character that agrees with the *thos*. Homer, when celebrating the prowess of Ajax, who alone attacked a band of Trojans, in the midst of whom Ulysses found himself engaged, after being wounded, compares him to a lion, who suddenly falls upon a troop of *thos* collected round a stag at bay, disperses, and pursues them, as mean and dastardly animals. The commentator of Homer interprets the word *thos* by *panther*, which, he says, is a kind of weak, timid wolf. Thus the thos and panther have been regarded as the same animal by several ancient Greeks. But Aristotle appears to have distinguished them, though he has not assigned to them different characters: "The internal parts of the *thos*," says he, "are similar to those of the

wolf*. . . . . They copulate like dogs†, and produce two, three, or four young, which are born blind. The body and tail of the thos are longer than those of the dog; but, though the former is not so tall, he is extremely nimble, and leaps to a great distance. . . . . The lion and thos are enemies‡, because they both feed upon flesh, and must, therefore, dispute about their prey. . . . . The thos loves men §, and never attacks them; neither does he seem to be much afraid of them. He fights with the dog and the lion. For this reason the lion and thos are never seen in the same places. The smallest thos are the best. There are two species of them, and some extend them to three." Aristotle says no more on the subject of the thos, and he says still less concerning the panther. It is mentioned only in one passage, namely, in the 35th chapter of the 16th book of his History of Animals: "The panther produces four young, which are blind at birth, like the young wolves." From comparing these passages with that of Homer, and those of other Greek authors, it appears to be almost certain, that the thos of Aristotle is the large jackal, and that the panther is the small jackal, or adive. We see that he admits the existence of two species of thos; that he mentions the panther but once, and when treating of the thos: it is therefore pro-

* Aristot. Hist. Anim. lib. ii. cap. xvii.
† Idem, lib. vi. cap. xxxv.
‡ Idem, lib. ix. cap. i.
§ Idem, lib. ix. cap. xliv.

Plate 327



A. Bell Sculpt.

JACKAL-ADIVE.

bable, that this panther is the small kind of thos; and this probability becomes almost a certainty from the testimony of Oppian *, who ranks the panther among the number of small animals, such as the cats and dormice.

Hence the thos is the jackal, and the panther the adive: and, whether they constitute two species, or but one, it is certain, that all the ancients have said, with regard to the thos and panther, applies to the jackal and adive, and to no other animals. If we have remained unacquainted with the true meaning of these names till now, it must be ascribed to the ignorance of the translators, and of our modern naturalists.

I here give the figure of a jackal, which seems to be the small jackal or *adive*. The drawing was sent to me from England, under the simple denomination of *jackal*. Mr. Bruce assures me, that the species here represented is common in Barbary, where it is called *thaleb*; and, as the figure has no resemblance to the description we have given of the jackal, I am persuaded that it is the *adive*, or small jackal, which differs from the large kind both in figure and in manners; for the small species may be tamed, and kept in a domestic state; and I never heard that the large jackal was ever rendered domestic.

The skin presented to the king's cabinet by M. Sonnerat under the name of Indian fox, is that of a jackal adive, as may be seen by consulting the figure. Although this was done from a

* Oppian de Venatione, lib. ii.

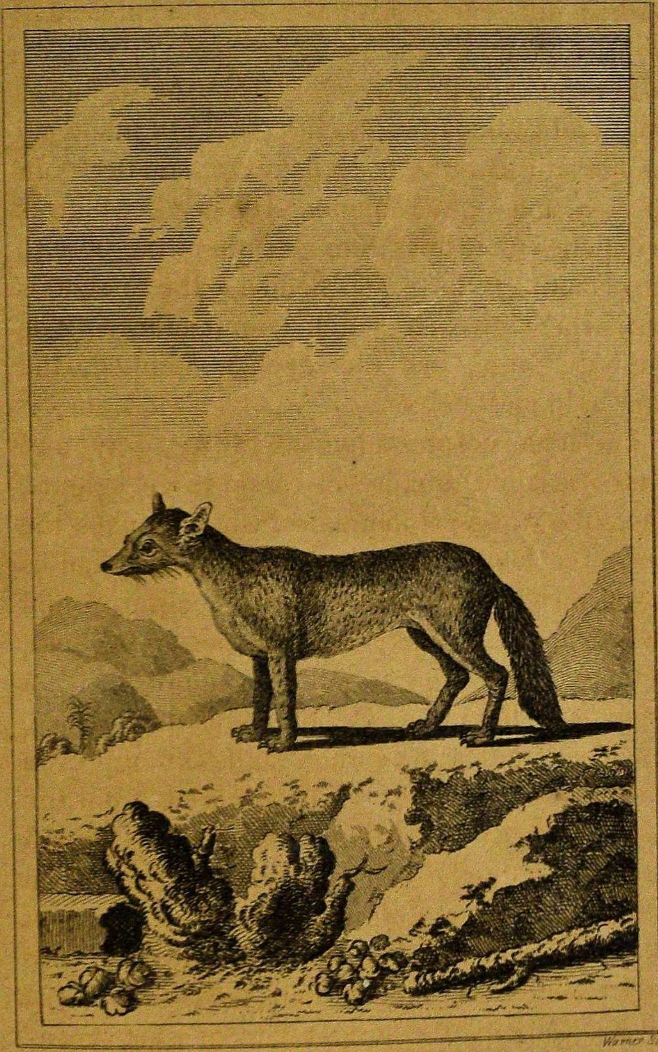
design sent from England, without any description, we constantly descry in this skin the characters of the species, where there are a few marked differences with the adive represented in this volume.

The jackal adive, which is twenty-one inches long, and twenty-three inches ten lines, following the curvature of the body, is rather smaller than the fox, and lighter made. Its head, which is five inches three lines from the end of the nose to the occiput, is long and slender: the muzzle is thin, which gives it a fine countenance. The eyes are large, and the eyelids inclined, the same as in all the foxes.

The colours of this adive are tawny, gray, and white: it is the mixture of these three colours, where the white predominates, which makes the general colour of this animal. The head is tawny mixed with white on the occiput, round the ear, to the cheeks; and browner on the nose and jaws; the edge of the eyes is brownish: a stripe goes from the interior angle of the eye, which enlarges at its corner, and extends even to the upper jaw; that which proceeds from the posterior angle is straight, and loses itself in a weak shade on the cheek, under the ear. The end of the nose and the nostrils, the contour of the mouth, and the edge of the eyelids, are black; as well as the long hairs above the eyes and the whiskers, the longest hairs of which measure three inches two lines: the neck, beneath, the upper part of the back, the shoulders, and the thighs, are of a grayish colour, but rather more

172

Plate 328



Warner Sc.

LITTLE JACKAL.

tawny on the back and shoulders. The exterior of the legs is of a deep tawny, but pale on the top of the feet. The interior is white and tawny, partly pale.

There are five toes on the fore-feet, of which the first, or thumb, has the nail situated on the wrist: the longest nail measures eight lines. The hind-foot has but four toes, and the nails are smaller, since the longest measures only five lines: the nails are crooked and grooved. The tail is six inches and six lines long: it is straight at its origin, large and tufted lengthwise: it is of a tawny white colour, tending to yellowish-white and to deep brown for more than a third from the tip, with some spots of the same colour on the posterior surface: the hairs are twenty-two lines long.

Though the species of the wolf approaches near to that of the dog, yet the jackal is interposed between them. *The jackal or adive*, as Belon remarks, *is an animal between a wolf and a dog*. With the ferocity of the wolf, he possesses a portion of the familiarity of the dog. His voice is a howling mixed with barks and groans *. He is more clamorous than the dog,

* It is of a fine yellow colour, smaller than a wolf, goes always in packs, and yelps during the whole night. . . . It is so voracious and so complete a thief, that it carries off not only what is good to eat, but hats, shoes, bridles, and every thing it can lay hold of. — *Obs. de Belon*, p. 163. Jackal pene omnem orientem inhabitat; bestia astuta, audax, et furacissima est. . . . Interdiu circa montes latet, noctu pervigil et vagus est: catervatim prædatum excurrit in rura et pagos. . . . . Ululatum noctu edunt execrabilem ejulatui humano

and more voracious than the wolf. He never goes alone, but always in packs of twenty, thirty, or forty. They assemble every evening for the purposes of war and of hunting. They feed upon small animals, and render themselves formidable to the larger species by their numbers. They attack every kind of cattle and poultry almost in the sight of men. They enter with insolence and boldness into the sheep-folds, the stables, and the cow-houses; and, when they find nothing better, they devour the leather of the harnessing, boots, and shoes, and carry off what they have not time to swallow. When live prey fails them, they dig up the bodies of men from their graves. The inhabitants are obliged to stick the earth of their sepulchres full of large spines, in order to prevent these animals from scraping and digging; for a thickness of several feet of earth is not sufficient to prevent them from accomplishing their purpose *. They go in packs, accompany this ex-

non dissimilem, quem interdum vox latrantium quasi canum interstrepit: unique inclamanti omnes acclamant, quotquot vocem e longinquo audiunt. — *Koempfer, Amœnit. Exotic* p. 413. About the canal of the Black Sea, there are many siacalles, or wild dogs, which resemble foxes, particularly in their muzzle. It is thought that they are engendered between wolves and dogs. In the evening and night they make frightful howlings. . . . They are very mischievous, and as dangerous as wolves. — *Voyage de Corneille le Brun*, p. 56.

* The adives are very fond of putrid bodies, and particularly of human bodies. When the Christians inter any person in the fields, they make a very deep pit: but even this

humation with mournful cries, and, when once accustomed to human bodies, they never fail to frequent the churchyards, to follow armies, and to attend the caravans. They may be considered as the ravens among quadrupeds. The most putrid flesh does not disgust them. Their appetite is so perpetual, and so vehement, that the driest leather, skins, tallow, and even the ordure of animals, are equally welcome to them. The hyæna has the same taste for putrid flesh: it likewise digs dead bodies out of their graves; and, from this practice, these animals, though very different from each other, have often been confounded. The hyæna is a solitary, silent, savage animal, which, though much stronger than the jackal, is less troublesome, and contents itself with devouring the dead, without disturbing the living. But all travellers complain of the cries, the robberies, and the gluttony of the jackal *, which unites the impudence of the dog

precaution is insufficient, unless the earth be beat hard, and mixed with stones and spines, which wound the animals, and prevent them from digging farther. In the Arabian language, the name *adive* signifies a *wolf*. Its figure, its hair, and its voracity, are analogous to this name; but its size, its familiarity, and its stupidity, convey a different idea of it. — *Voyage du P. Fr. Vincent Marie*, c. xiii.

* Jackals are in so great plenty about the gardens, that they pass in numbers, like a pack of hounds in full cry, every evening, giving not only disturbance by their noise, but making free with the poultry, and other provisions, if very good care is not taken to keep them out of their reach. — *Russel's Natural History of Aleppo.* Around Mount Caucasus there are many jackals. This animal resembles the fox. [illegible]gs dead bodies out of their graves, and devours animals and car-

with the cowardice of the wolf, and, participating of the nature of each, seems to be an odious creature, composed of all the bad qualities of both *.

rion. In the East, the dead are interred without coffins, or clothes of any kind. I have often seen large stones rolled upon graves, to prevent these animals from devouring the bodies. Mingrelia is infested with jackals. They frequently surround the houses, and make dreadful howlings: but, what is worse, they make great havock among the cattle and horses. — *Voyage de Chardin*, p. 76.

* Professor Pallas has given a very accurate description of the jackal, which the editor has taken from Dr. Shaw's General Zoology, as a valuable addition to Buffon's account of this animal.

" In external figure, the jackal resembles the wolf more than the fox. It is also larger, and stands higher on its legs than the fox. The head is of a fox-red above, mixed with ash-gray hairs, which have each a blackish ring and tip: the upper lip is white on each side the nose, and the throat is of the same colour: the whiskers, the long hairs on the chin, and those above the eyes, which are five in number, are black: the ears are fox-red externally, and white internally: the neck and back are all over gray-yellow, and both, but especially the latter, are dashed with a shade of dusky, owing to the tips of the long hairs on those parts. The under parts of the body and the legs are of a reddish-yellow, but the shoulders and thighs are externally of a fox-red: the claws are black; the thumb claw stands higher than in the dog, and is crooked: the tail is straight, somewhat longer and more hairy than in the wolf, and is of a grayish-yellow, more inclining to fox-red towards the end; the long hairs have black tips, and consequently the tip of the tail appears black. The hair of the jackal is coarser and stronger than that of the wolf, and is longest on the shoulders and tail, where it measures four inches: on the neck and back it is shorter by [illegible]: between the hairs is situated a woolly fur of a gray colour. The four middle front teeth are of a truncated form,

or, if cut off, flat, not perceptibly notched or indented: the two exterior larger ones in the upper jaw are somewhat carinated, in the lower rounded: the side or canine teeth in the upper jaw are somewhat larger than in the under: the grinders are six on each side, the first being the smallest, and of a conical shape; the next grinders, to the number of two in the upper, and three in the lower, are gradually larger, and divided into three points: the fourth of the upper jaw and the fifth of the under are the largest, and have two points: the remaining ones stand deeper in the jaw, or more inwards, and are smaller than in the preceding; the tongue has on each side a border or row of small verrucæ, or warts."

W.

THE ISATIS, OR ARCTIC DOG*.

IF a number of resemblances, joined to a perfect conformity of internal parts, were sufficient to constitute unity of species, the wolf, the fox, and the dog, would form but one; for the resemblances are more numerous than the dif-

* CHARACTER SPECIFICUS.

CANIS LAGOPUS. C. cauda recta, palmis plantisque pilosissimis. — *Linn. Syst. Nat. Gmel.* i. p. 75. — *Erxleb. Mamm.* p. 568.

Canis cauda recta, apice unicolore. — *Schreb.* iii. p. 262, pl. 93.

Canis hieme albus, æstate ex cinereo cærulescens. — *Briss. Quadr.* p. 174.

VULPES ALBA. — *Aldrov. Digit.* p. 222, fig. mediocr. — *Johnst. Quadr.* p. 133.

VULPES CÆRULESCENS. — *Faun. Suec.* p. 14.

L'ISATIS. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 191, pl. 17.

ARCTIC FOX. — *Forster, Phil. Trans.* vol. lxxii. p. 370. — *Penn. Hist. Quadr.* i. p. 255, pl. 52. — *Shaw's Gen. Zool.* i. p. 327.

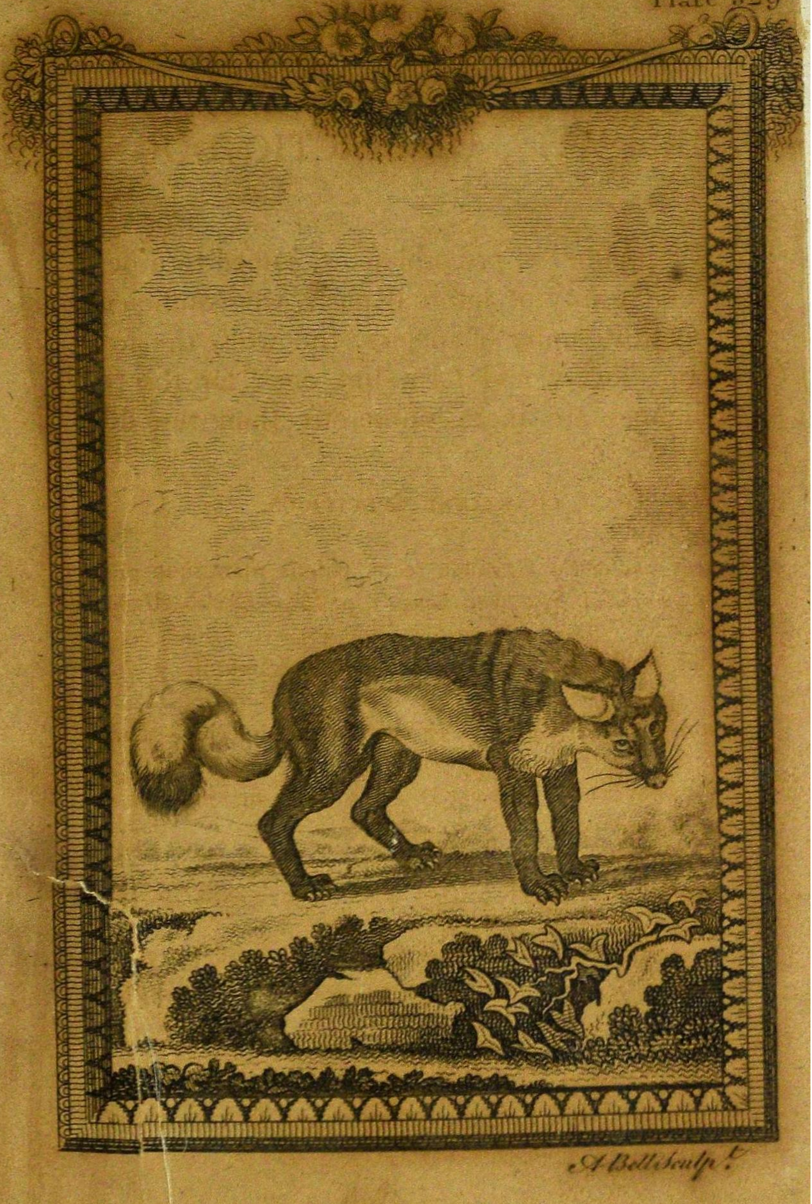
HABITAT

in omne mare glaciale frequentissimus, etiam in America boreali; in nudis montibus, non in silvis.

W.

178

Plate 329



A. Bell Sculp.t

ISATIS.

ferences, and the similarity of the internal parts is complete. These three animals, however, not only constitute three distinct species, but are so distant from each other, as to admit intermediate species. The jackal is an intermediate species between the dog and wolf; and the isatis is placed between the fox and dog. The isatis has hitherto been regarded as a variety of the fox. But the description given of it by Gmelin demonstrates it to be a different species.

The isatis is very common in all the northern regions bordering on the Frozen Sea, and is never found on this side of the sixty-ninth degree of latitude. In the figure of the body, and the length of the tail, he is perfectly similar to the fox; but his head has a greater resemblance to that of the dog. His hair is softer than that of the common fox, and his fur is sometimes white, and sometimes of a bluish ash-colour. The head is short in proportion to the body; it is broad near the neck, and is terminated by a sharp muzzle.

Arctic dog with a sharp nose; short rounded ears, almost hid in the fur; long and soft hair, somewhat woolly; short legs; toes covered on all parts, like those of a hare, with fur; tail shorter than that of the common fox, and more bushy. This animal is of a bluish-gray, or ash-colour, and sometimes white. The young of the gray are black before they come to maturity. The hair is much longer in winter than summer, as is usual with animals of cold climates. — *Penn. Synops. Quadr.* p. 155.

Isatis, the name given by Gmelin to this animal; it is called *Peszi* in the Russian language. — *Voyage de Gmelin*, tom. iii. p. 215.

The ears are almost round. He has five toes and five claws on the fore-feet, and only four on those behind. The penis of the male is scarcely so thick as a goose quill. The testicles are as large as almonds, and are so concealed with the hair, that it is difficult to perceive them. The hair over the whole body is about two inches long, smooth, bushy, and soft as wool. The nostrils and under lip are naked, and the skin of these parts is black.

In both male and female, the stomach, viscera, intestines, and spermatic vessels, are similar to those of the dog: there is even a bone in the penis of the male, and the whole skeleton resembles that of a fox.

The voice of the isatis partakes of the barking of a dog and the yelping of a fox. The merchants who deal in furs distinguish two kinds of isatis, the one white, and the other of a bluish ash-colour. The latter are most esteemed, and their price advances in proportion to their blueness or brownness. This difference of colour is not sufficient to constitute a difference of species; for M. Gmelin was assured, by the most experienced hunters, that, in the same litter, some of the young are white, and others ash-coloured.

The isatis is an animal peculiar to the northern regions. He prefers the coasts of the Frozen Sea, and the banks of the rivers which fall into it. He loves open countries, and never frequents the woods. He is found in the coldest and most naked mountains of Norway, Lapland,

Siberia, and Iceland *. These animals copulate in the month of March; and, their organs of generation being formed like those of the dog, they cannot separate for some time. Their rutting season lasts fifteen days, or three weeks, during which they are always in the open air; and afterwards they retire to their holes, which are narrow, very deep, and have several entries. They keep their holes clean, and make beds of moss in them. The time of gestation, like that of the bitch, is about nine weeks. The females bring forth about the end of June or beginning of May, and generally produce six, seven, or eight at a litter †. Those which are to be white, are yellowish at birth, and those which are to be of a bluish ash-colour, are blackish, and their hair is then very short. The mother suckles and attends them in the hole during five or six weeks; after which, she makes them go out, and brings them victuals. In the month of September, their hair is more than half an inch long. At this period, those which are to be white, are almost entirely so, except a brown band along the back, and another across the

* It is probably by sailing on boards of ice that the foxes have found their way into Iceland, where they are very numerous. Some of them are black; but they are commonly gray or blue in summer, and white in winter; in which last season their fur is best. — *Anderson's Nat. Hist. of Iceland*, tom. i. p. 56.

† M. Gmelin says, from the testimony of hunters, that these animals sometimes produce twenty or twenty-five at one litter. But this fact is extremely suspicious.

shoulders. It is then that the isatis is called the *cross-fox* *. But this brown cross disappears before winter, when they are entirely white, and their hair more than two inches in length. About the month of May, the hair begins to fall off, and the moulting is finished in July: hence the fur is good in winter only.

The isatis lives upon rats, hares, and birds; and, in seizing them, he uses as much address as the fox. He swims across lakes in quest of the nests of ducks and of geese, and eats the eggs and the young. In these cold and desert regions, he has no enemy but the glutton, who lies in ambush for him.

As the wolf, the fox, the glutton, and the other animals which inhabit the northern regions of Europe and Asia, have passed from the one continent to the other, and are found in America, the isatis ought likewise to be found there; and I presume that the silver-gray fox of North America, of which Catesby † has given a figure, is the isatis, and not a simple variety of the fox ‡.

* From this circumstance, it is probable that the *vulpes crucigera* of Gesner (*Icon. Quad.* p. 190), and of Rzaczinski (*Hist. Nat. Pol.* p. 231), is the same animal with the isatis.

† Nat. Hist. of Carolina, tom. ii. fig. p. 78.

‡ The following addition to Buffon's account of this fox, is extracted from Pennant's Arctic Zoology, i. p. 42, No. 10.

" These animals," says Mr. Pennant, " are found only in the arctic regions, a few degrees within and without the polar circle. They inhabit Spitzbergen, Iceland, and Greenland: are only migratory in Hudson's Bay, once in four or five

In a letter from London, dated the 19th day of February, 1768, Mr. Colinson communicates the following notice:

years: are found again in Bering's and Copper Isle, next to it, but not beyond: in Kamtschatka, and all the countries bordering on the Frozen Sea, which seems their great residence, comprehending a woodless track of heath land, generally from seventy to sixty-five degrees latitude. They abound in Nova Zembla: are found in Cherry Island, midway between Finmark and Spitzbergen; to which they must have been brought on islands of ice; for it lies above four degrees north of the first, and three south of the last: and lastly, in the bare mountains between Lapland and Norway.

"They are the hardiest of animals, and even in Spitzbergen and Nova Zembla prowl for prey during the severity of winter. They live on the young wild geese, and all kinds of water-fowl; on their eggs; on hares, or any lesser animals; and in Greenland (through necessity) on berries, shell-fish, or whatsoever the sea throws up. But in the north of Asia, and in Lapland, their principal food is the leming (a species of mouse). The arctic foxes of those regions are as migratory as those little animals; and when the last make their great migrations, the former pursue them in vast troops. But such removals are not only uncertain, but long: dependent on those of the leming. The foxes will, at times, desert their native countries for three or four years, probably as long as they can find any prey. The people of Jenesia imagine that the wanderers from their parts go to the banks of the Oby. Those found in Bering's and Copper Isles were probably brought from the Asiatic side on floating ice: Steller having seen in the remoter islands only the black and brown foxes: and the same only on the continent of America. They burrow in the earth, and form holes many feet in length; strewing the bottom with moss. But in Spitzbergen and Greenland, where the ground is eternally frozen, they live in the cliffs (clefts) of rocks; two or three inhabit the same hole. They swim well, and often cross from island to

"My friend M. Paul Demidorff, a Russian, who is an admirer of your works, sends you a drawing of an undescribed animal, called *cossac*. It was brought from the vast deserts of Tartary, situated between the rivers Jaïck, Emba, and the sources of the Irtish. These cossacs are so numerous in that part of the country, that the

island in search of prey. They bark like dogs; for which reason the Russians call them *pefzti*.

"They are tame and inoffensive animals, and so simple, that there are instances of their standing by when the trap was baiting, and instantly after putting their heads into it. They are killed for the sake of their skins, both in Asia and Hudson's Bay: the fur is light and warm, but not durable. Mr. Graham informed me, that they have appeared in such numbers about the fort, that he has taken, in different ways, four hundred from December to March. He likewise assured me that the tips of their tails are always black: those of the common foxes are always white; and that he never could trace the breeding places of the former.

"The Greenlanders take them either in pit-falls dug in the snow, and baited with the capelin fish, or in springs made with whalebone laid over a hole made in the snow, strewed over at bottom with the same kind of fish; or in traps made like little huts, with flat stones, with a broad one by way of door, which falls down (by means of a string baited on the inside with a piece of flesh) whenever the fox enters and pulls at it. The Greenlanders preserve the skin for traffic; and, in cases of necessity, eat the flesh. They also make buttons of the skins; and split the tendons, and make use of them instead of thread. The blue furs are much more esteemed than the white."

Steller, who resided for some time in the midst of these animals, has given a very particular, though apparently overstrained, account of their manners.

W.